MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

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Jno B Wright

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

DIVISION OF HEALTH SCIENCES LIBRARY

EIGHTIETH ANNUAL SESSION

HELD AT

RALEIGH, NORTH CAROLINA

April 17th, 18th and 19th, 1933

PRESIDENT

JNO. B. WRIGHT, M.D., F.A.C.S., RALEIGH

SECRETARY-TREASURER

L. B. McBRAYER, M.D., F.A.C.P., SOUTHERN PINES

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"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."

—*Extract from By-Laws, Chapter 10, Section 8.*

EARLY HISTORY OF THE NORTH CAROLINA MEDICAL SOCIETY, FROM ORGANIZATION TO 1804

Date	Place	President	Vice-Presidents	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 17, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton James Webb Jas. John Pasteur Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchell Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1933
*Missing Data Not to be Found in Record

	Date	Place of of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	E. Strudwick	F. J. Haywood, C. E. Johnson, J. E. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	E. Strudwick	C. E. Johnson.	W. H. McKee	W. G. Hill	46	0	
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnson B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	
13	1866	Raleigh	20	J. J. Summerell	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas		S. S. Satchwell	C. W. Graham	288	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	36	E. B. Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Luckey, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones			
18	1871	Raleigh	35	Hugh Kelley	D. N. Patterson, R. C. Pearson, J. B. Seavy, G. L. Kirby.	Thomas F. Wood	J. W. Jones			
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones			

20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Charles Duffy, P. T. Jerman.	James McKee	H. T. Bahnson			
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson			
22	1875	Wilson	60	J. W. Jones	Walker Debnam, J. A. Gibson, William Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot	A. G. Carr	194	6	
26	1879	Greensboro	109	Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	
28	1881	Asheville	92	R. B. Haywood	J. E. McKee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	
29	1882	Concord	65	Thos. F. Wood	T. J. Moore, D. J. Cain, S. E. Evans. John McDonald.	L. J. Picot	A. G. Carr	297	7	
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Van Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	
35	1888	Fayetteville	133	T. D. Haigh	W. T. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker	C. M. Van Poole	306	6	
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long.	J. M. Baker	C. M. Van Poole	410	6	
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. D. Booth.	J. M. Hays	C. M. Van Poole	414	6	
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays	C. M. Van Poole	422	6	
39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Van Poole	431	6	
40	1893	Raleigh	221	J. W. McNeill	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3
41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro		J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1933
*Missing Data Not to be Found in Record

Date	Place of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
44 1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45 1898	Charlotte	*	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46 1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	Geo. W. Presley	G. T. Sikes	489	6	16
47 1900	Tarboro	115	George W. Long	C. M. Van Poole, James M. Parrott. T. B. Williams, W. D. Hillard	Geo. W. Presley	G. T. Sikes	482	6	21
48 1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A Stanton, E. M. Summerell.	Geo. W. Presley	G. T. Sikes	515	5	18
49 1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I M. Taylor, J. M. Parrott.	Geo. W. Presley	G. T. Sikes	546	5	20
50 1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51 1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52 1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W Faison.	J. Howell Way	G. T. Sikes	1,175	8	17
53 1906	Charlotte	406	E. C. Register	L. B. McBrayer, W. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54 1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLaughlin, W. F. Hargrove.	David A. Stanton	H. McK. Tucker	888	7	16
55 1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H Dixon.	David A. Stanton	H. McK. Tucker	998	7	28
56 1909	Asheville	337	J. F. Highsmith	C. M. Van Poole, D. A. Garrison, D. O. Dees.	David A. Stanton	H. McK. Tucker	1,067	7	25
57 1910	Wrightsville Beach	276	J. A. Burroughs† E. J. Wood	E. J. Wood, John Q. Myers, L. D. Wharton.	David A. Stanton	H. D. Walker	1,080	8	35
58 1911	Charlotte	412	C. M. Van Poole	J. V. McGougan, W. E. Warren, L. N. Glenn.	David A. Stanton	H. D. Walker	880	8	45
59 1912	Hendersonville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy.	David A. Stanton	H. D. Walker	950	8	44
60 1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse.	John A. Ferrell	H. D. Walker	1,133	8	40
61 1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, D. E. Sevier.	John A. Ferrell	H. D. Walker	1,228	8	47
62 1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell.	John A. Ferrell	H. D. Walker	1,221	9	68

†Died during his term of office; succeeded by E. J. Wood, first vice-president.

63	1916	Durham	406	M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison.	Benj. K. Hays	W. M. Jones	1,228	10	79
64	1917	Asheville	280	Charles O'H. Laughinghouse	D. J. Hill, J. L. Spruill, J. H. Shuford.	Benj. K. Hays	W. M. Jones	1,271	11	81
65	1918	Pinehurst	291	I. W. Faison	Wm. deB. MacNider, Jos. B. Greene, Ben F. Royal.	Benj. K. Hays	W. M. Jones	1,087	11	81
						Sec-Treas	Acting Sec.-Treas.			
66	1919	Pinehurst	335	Cyrus Thompson	J. W. Halford, T. W. Davis, A. McN. Blair.	Benj. K. Hays	L. B. McBrayer	1,306	11	100
67	1920	Charlotte	479	C. V. Reynolds	H. D. Walker, F. Stanley Whitaker, Thomas I. Fox.	Benj. K. Hays	L. B. McBrayer	1,497	12	100
68	1921	Pinehurst	404	T. E. Anderson	C. S. Lawrence, W. H. Ward, J. M. Manning.	Benj. K. Hays	L. B. McBrayer	1,491	12	93
							Sec.-Treas.			
69	1922	Winston-Salem	507	H. A. Royster	W. T. Parrott, B. C. Nalle, J. R. McCracken.		L. B. McBrayer	1,571	12	100
70	1923	Asheville	356	J. W. Long	F. M. Hanes, T. C. Johnson, B. L. Long.		L. B. McBrayer	1,592	9	101
71	1924	Raleigh	525	J. V. McGougan	J. L. Spruill, ‡Eugene B. Glenn, D. A. Garrison.		L. B. McBrayer	1,604	9	106
72	1925	Pinehurst	550	Albert Anderson	W. L. Dunn, A. E. Bell, K. G. Averitt.		L. B. McBrayer	1,657	10	116
73	1926	Wrightsville Beach	445	Wm. deB. MacNider	J. P. Matheson, W. W. Dawson, H. H. Bass.		L. B. McBrayer	1,663	10	107
74	1927	Durham	653	John Q. Myers	J. W. Carroll, A. Y. Linville, C. H. Cocke.		L. B. McBrayer	1,691	10	121
75	1928	Pinehurst	611	John T. Burrus	G. H. Macon, R. F. Leinbach, W. R. Griffin.		L. B. McBrayer	1,738	11	143
76	1929	Greensboro	671	Thurman D. Kitchin	Dr. W. L. Dunn,* Asheville, Dr. D. T. Tayloe, Jr., Washington, Dr. W. D. James, Hamlet.		L. B. McBrayer	1,666	11	146
77	1930	Pinehurst	701	L. A. Crowell	W. B. Murphy, Wm. E. Warren, N. B. Adams.		L. B. McBrayer	1,711	11	155
					President-Elect	Vice-Presidents				
78	1931	Durham	714	J. G. Murphy	M. L. Stevens	C. A. Julian, Greensboro. J. W. Davis, Statesville	L. B. McBrayer	1,600	10	164
79	1932	Winston-Salem	740	M. L. Stevens	Jno. B. Wright	C. W. Banner, Greensboro W. W. Sawyer, Elizabeth City	L. B. McBrayer	1,559	10	166
80	1933	Raleigh	714	Jno. B. Wright	I. H. Manning	J. R. McCracken, Waynesville. W. G. Suiter, Weldon	L. B. McBrayer	1363	10	181

*Died during term of office.

ROSTER OF MEMBERS OF THE VARIOUS BOARDS OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

FIRST BOARD

JAMES H. DICKSON, Wilmington....1859-1866
CHARLES E. JOHNSON, Raleigh....1859-1866
CALEB WINSLOW, Hertford....1859-1866
OTIS F. MANSON, Townsville....1859-1866
WILLIAM H. McKEE, Raleigh....1859-1866
CHRISTOPHER HAPPOLDT, Morganton....1859-1866
J. GRAHAM TULL, New Bern....1859-1866
SAMUEL T. IREDELL, Secretary....1859-1866

SECOND BOARD

N. J. PITTMAN, Tarboro....1866-1872
E. BURKE HAYWOOD, Raleigh....1866-1872
R. H. WINBORNE, Edenton....1866-1872
S. S. SATCHWELL, Rocky Point....1866-1872
J. J. SUMMERELL, Salisbury....1866-1872
R. B. HAYWOOD, Raleigh....1866-1872
M. WHITEHEAD, Salisbury....1866-1872
J. F. SHAFFNER, Salem....1866-1872
WILLIAM LITTLE, Secretary....1866-1867
THOMAS F. WOOD, Secretary, Wilmington....1867-1872

THIRD BOARD

CHARLES J. O'HAGAN, Greenville....1872-1878
W. A. B. NORCOM, Edenton....1872-1878
C. TATE MURPHY, Clinton....1872-1878
GEORGE A. FOOTE, Warrenton....1872-1878
J. W. JONES, Tarboro....1872-1878
R. L. PAYNE, Lexington....1872-1878
CHARLES DUFFY, JR., Secretary, New Bern....1872-1878

FOURTH BOARD

PETER E. HINES, Raleigh....1878-1884
THOMAS D. HAIGH, Fayetteville....1878-1884
GEORGE L. KIRBY, Goldsboro....1878-1884
THOMAS F. WOOD, Wilmington....1878-1884
JOSEPH GRAHAM, Charlotte....1878-1884
[1]ROBERT I. HICKS, Williamston....1878-1880
[2]RICHARD H. LEWIS, Raleigh....1880-1884
HENRY T. BAHNSON, Secretary, Salem....1878-1884

FIFTH BOARD

WILLIAM R. WOOD, Scotland Neck....1884-1890
AUGUSTUS W. KNOX, Raleigh....1884-1890
FRANCIS DUFFY, New Bern....1884-1890
PATRICK L. MURPHY, Morganton....1884-1890
WILLIS ALSTON, Littleton....1884-1890
J. A. REAGAN, Weaverville....1884-1890
W. J. H. BELLAMY, Secretary, Wilmington....1884-1890

SIXTH AND SEVENTH BOARDS

R. L. PAYNE, JR., Lexington....1890-1892
GEORGE W. PUREFOY, Asheville....1890-1892
GEORGE G. THOMAS, Wilmington....1890-1894
ROBERT S. YOUNG, Concord....1890-1894
WILLIAM H. WHITEHEAD, Rocky Mount....1890-1896
GEORGE W. LONG, Graham....1890-1896
L. J. PICOT, Secretary, Littleton....1890-1896
JULIAN M. BAKER, Tarboro....1892-1898
H. B. WEAVER, Secretary, Asheville....1892-1898
[3]J. M. HAYS, Greensboro....1894-1897
[4]KEMP P. BATTLE, JR., Raleigh....1897-1900

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[1]Resigned before expiration of term.
[2]Elected for unexpired term of Dr. Hicks.
[3]Died before the expiration of his term.
[4]Elected to serve unexpired term of Dr. Hays.

[1]THOMAS S. BURBANK, Wilmington....1894-1898
[2]WILLIAM H. H. COBB, Goldsboro....1898-1900
[1]RICHARD H. WHITEHEAD, Chapel Hill....1896-1898
[3]J. HOWELL WAY, Secretary, Waynesville....1898-1902
DAVID T. TAYLOE, Washington....1896-1902
THOMAS E. ANDERSON, Secretary, Statesville....1896-1902
[4]ALBERT ANDERSON, Wilson....1898-1902
[4]EDWARD C. REGISTER, Charlotte....1898-1902
[4]THOMAS S. McMULLAN, Hertford....1900-1902
[4]JOHN C. WALTON....1900-1902

EIGHTH BOARD

A. A. KENT, Lenoir....1902-1908
CHARLES O'H. LAUGHINGHOUSE, Greenville....1902-1908
M. H. FLETCHER, Asheville....1902-1908
JAMES M. PARROTT, Kinston....1902-1908
J. T. J. BATTLE, Greensboro....1902-1908
FRANK H. RUSSELL, Wilmington....1902-1908
[1]GEORGE W. PRESSLY, Secretary, Charlotte....1902-1906
[5]G. T. SIKES, Secretary, Grissom....1906-1908

NINTH BOARD

LEWIS B. McBRAYER, Asheville....1908-1914
JOHN C. RODMAN, Washington....1908-1914
WILLIAM W. McKENZIE, Salisbury....1908-1914
HENRY H. DODSON, Greensboro....1908-1914
JOHN BYNUM, Winston-Salem....1908-1914
J. L. NICHOLSON, Richlands....1908-1914
BENJ. K. HAYS, Secretary, Oxford....1908-1914

TENTH BOARD

ISAAC M. TAYLOR, Morganton....1914-1920
JOHN Q. MYERS, Charlotte....1914-1920
JACOB F. HIGHSMITH, Fayetteville....1914-1920
MARTIN L. STEVENS, Asheville....1914-1920
[6]CHARLES T. HARPER, Wilmington....1914-1915
[7]EDWIN G. MOORE, Elm City....1915-1920
[8]JOHN G. BLOUNT, Washington....1914-1920
HUBERT A. ROYSTER, Secretary, Raleigh....1914-1920

ELEVENTH BOARD

LESTER A. CROWELL, Lincolnton....1920-1926
WILLIAM P. HOLT, Duke....1920-1926
J. GERALD MURPHY, Wilmington....1920-1926
LUCIUS N. GLENN, Gastonia....1920-1926
CLARENCE A. SHORE, Raleigh....1920-1926
WILLIAM M. JONES, Greensboro....1920-1926
KEMP P. B. BONNER, Secretary, Morehead City....1920-1926

TWELFTH BOARD

PAUL H. RINGER, Asheville....1926-1932
W. HOUSTON MOORE, Wilmington....1926-1932
T. W. M. LONG, Roanoke Rapids....1926-1932
[6]W. W. DAWSON, Grifton....1926-1932
J. K. PEPPER, Winston-Salem....1926-1932
FOY ROBERSON, Durham....1926-1932
JOHN W. McCONNELL, Secretary, Davidson....1926-1932
[9]DAVID T. TAYLOE, JR., Washington....1930-1932

THIRTEENTH BOARD

BEN F. ROYAL, Morehead City....1932-1938
BENJ. J. LAWRENCE, Secretary, Raleigh....1932-1938
F. WEBB GRIFFITH, Asheville....1932-1938
HAMILTON W. McKAY, Charlotte....1932-1938
J. W. VERNON, Morganton....1932-1938
W. H. SMITH, Goldsboro....1932-1938
K. G. AVERITT, Cedar Creek....1932-1938

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[1]Resigned before the expiration of his term.
[2]Elected to serve the unexpired term of Dr. Burbank.
[3]Elected to serve the unexpired term of Dr. Whitehead.
[4]Elected for short term expiring in 1902.
[5]Elected to serve the unexpired term of Dr. Pressly.
[6]Died before the expiration of his term.
[7]Elected to serve the unexpired term of Dr. Harper.
[8]Died a few months before the expiration of his term; such a short time that the vacancy was not filled.
[9]Elected to serve unexpired term of Dr. W. W. Dawson.

NOTE: In 1890 the Medical Society of the State of North Carolina adopted the plan of electing members of the Board in such a manner that the terms would expire at different intervals of two years. This practice was followed for twelve years, or until 1902, when the plan was abandoned; an equivalent of two terms of six years each. It is evident that the Society arranged to abandon the policy as early as 1898, as two members were elected for short terms, and two years later two other members were elected for still shorter terms. It is therefore impossible to separate the sixth and seventh Boards, since the membership was overlapping.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH
FROM ORGANIZATION IN 1877 TO 1933

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas, F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
M. Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald, M.D.	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1886
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hillard, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1888
H. T. Bahnson, M.D., President	Winston	State Society	1887 to 1888
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1889
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1888 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1888 to 1891
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1892
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1893
J. M. Baker, M.D.	Tarboro	State Society	1891 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1892
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1897
Thomas, F. Wood, M.D., Secretary*	Wilmington	State Society	1892 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1891 to 1895
S. Westray Battle, M.D.	Asheville	State Society	1892 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1893 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1894 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1897 to 1899
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

MEMBERS STATE BOARD OF HEALTH—Continued

Name	Address	Appointed by	Term
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M. D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1909
James A. Burroughs, M.D.[1]	Asheville	State Society	1907 to 1913
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1909 to 1913
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.[2]	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1913 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D.[1]	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1917 to 1923
Fletcher R. Harris, M.D.[3]	Henderson	State Society	1919 to 1923
A. J. Crowell, M.D.	Charlotte	Gov. T. W. Bickett	1919 to 1923
Chas. E. Waddell, C.E.[4]	Asheville	Gov. C. Morrison	1921 to 1923
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1919 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1923 to 1925
J. Howell Way, M.D., President	Waynesville	Gov. C. Morrison	1923 to 1929
A. J. Crowell, M.D.	Charlotte	Gov. C. Morrison	1923 to 1929
James P. Stowe, Ph.G.	Charlotte	Gov. C. Morrison	1923 to 1927
D. A. Stanton, M.D.	High Point	State Board of Health	1923 to 1925
Thomas E. Anderson, M.D.	Statesville	State Society	1923 to 1929
Charles O'H. Laughinghouse, M.D.[5]	Greenville	State Society	1923 to 1926
Cyrus Thompson, M.D.[1]	Jacksonville	State Society	1925 to 1931
D. A. Stanton, M.D.	High Point	State Society	1925 to 1931
R. H. Lewis, M.D.[1]	Raleigh	Gov. A. W. McLean	1925 to 1931
Jno. B. Wright, M.D.[6]	Raleigh	Gov. A. W. McLean	1926 to 1931
E. J. Tucker, D.D.S.[6]	Roxboro	Gov. A. W. McLean	1925 to 1931
W. S. Rankin, M.D.[4]	Charlotte	State Board of Health	1926 to 1927
L. E. McDaniel, M.D.	Jackson	State Board of Health	1927 to 1929
Chas. C. Orr, M.D.	Asheville	Gov. A. W. McLean	1927 to 1929
Thomas E. Anderson, M.D.[6]	Statesville	State Society	1929 to 1935
L. E. McDaniel, M.D.[6]	Jackson	State Society	1929 to 1935
James P. Stowe, Ph.G.[6]	Charlotte	Gov. A. W. McLean	1927 to 1933
A. J. Crowell, M.D.[6]	Charlotte	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.	Kinston	State Board of Health	1930 to 1931
Chas. C. Orr, M.D.[6]	Asheville	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.[5]	Kinston	State Society	1931 to 1935
C. V. Reynolds, M. D.	Asheville	State Society	1931 to 1935
L. B. Evans, M. D.	Windsor	State Society	1931 to 1933
S. D. Craig, M. D.	Winston-Salem	State Society	1931 to 1933
John T. Burrus, M. D.	High Point	Gov. O. Max Gardner	1931 to 1933
J. N. Johnson, D.D.S.	Goldsboro	Gov. O. Max Gardner	1931 to 1933
J. A. Goode, Ph.G.	Asheville	Gov. O. Max Gardner	1931 to 1933
H. L. Large, M.D.	Rocky Mount	Gov. O. Max Gardner	1931 to 1935
H. G. Baity, C.E.	Chapel Hill	Gov. O. Max Gardner	1931 to 1935
Grady G. Dixon, M.D.[7]	Ayden	Ex. Com. State Society	1931 to 1932
Grady G. Dixon, M.D.[7]	Ayden	State Society	1932 to 1935
S. D. Craig	Winston-Salem	State Society	1933 to 1937
W. T. Rainey, M.D.	Fayetteville	State Society	1933 to 1937

[1]Died leaving unexpired term.
[2]Resigned to become member of General Assembly.
[3]Resigned to become Health Officer Vance County.
[4]Resigned.
[5]Resigned to become Secretary of State Board of Health.
[6]Term terminated account reorganization State Board of Health by General Assembly.
[7]To fill vacancy caused by resignation of Dr. J. M. Parrott.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1919-1933

County	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Alamance-Caswell *a*	15	27	27	31	27	27	25	27	30	30	32	33	33	32	29
Alexander *b*															
Alleghany *n*					1										
Anson	3	2	1	2	12	12	11	10	6	8	8	6	6	4	4
Ashe *p*	8	7	5	9	8	6	10	6	8	6	5	5	5	4	
Avery *r*	6	4	5	4	5	5	5	5	6	6	6	5	5	4	
Beaufort	10	14	12	14	17	14	17	17	17	17	16	18	15	15	12
Bertie	5	10	9	12	10	9	9	8	8	8	6	7	9	7	8
Bladen	9	8	7	7	4	3	8	7	8	8	8	8	8	8	5
Brunswick	2	2	1	1	1	1	1	1	1	4	6	2	2	2	2
Buncombe	81	83	92	96	99	105	97	102	118	120	118	113	112	105	83
Burke	6	11	12	11	15	13	14	11	11	12	12	17	17	17	17
Cabarrus	19	20	19	21	23	19	21	21	22	27	27	23	20	20	10
Caldwell	12	10	10	12	12	10	11	14	15	15	13	15	14	12	9
Camden *c*															
Carteret	7	9	9	8	12	10	10	12	12	11	11	12	12	12	12
Caswell *d*	3	2	2	1	1	1	2								
Catawba	5	18	16	22	20	19	16	16	21	16	17	13	13	16	8
Chatham	7	10	11	6	7	9	9	7	9	8	9	9	4	3	2
Cherokee	6	10	10	10	10	9	10	9	8	10	10	10	9	8	5
Chowan-Perquimans	6	8	7	6	7	8	5	9	10	9	7	8	6	7	6
Clay *e*															
Cleveland	17	19	16	19	18	18	17	19	20	20	22	23	19	22	21
Columbus	6	10	8	9	14	11	12	14	15	14	14	15	10	8	8
Craven	7	6	6	8	10	12	14	16	17	15	14	13	13	14	9
Cumberland	15	20	24	23	22	32	31	28	29	28	22	26	23	21	27
Currituck *s*	5	5	5	5	4	4	4	4	3	2	1	1	1	1	
Dare *f*															
Davidson	19	18	16	18	18	22	20	19	19	18	17	16	17	17	17
Davie	4	4	4	4	6	4	5	4	5	5	5	5	5	6	4
Duplin	9	10	12	11	12	12	13	13	13	9	11	9	11	7	2
Durham-Orange	33	45	40	43	43	47	53	60	64	63	65	67	76	77	76
Edgecombe-Nash	7	15	15	15	12	10	11	12	12	12	7	10	43	39	25
Forsyth	37	57	62	60	59	62	63	64	66	74	59	70	66	69	70
Franklin	11	12	10	12	12	12	12	12	10	12	11	10	9	7	7
Gaston	26	35	38	39	40	40	39	40	38	39	39	36	33	37	12
Gates	1				1	1	1			1	2	2	2	2	2
Graham															
Granville	14	15	14	14	12	13	13	12	12	14	13	13	13	12	10
Greene	5	6	7	7	5	6	5	5	5	5	5	5	5	5	5
Guilford	72	77	78	80	87	93	107	112	119	123	130	124	124	118	91
Halifax	7	28	24	24	18	21	20	16	14	17	17	16	15	14	13
Harnett	14	16	15	16	15	15	13	12	16	16	15	14	13	15	16
Haywood	9	11	10	12	13	13	14	14	13	8	14	14	12	13	15
Henderson *j*								17	19	16	16	19	14	12	9
Henderson-Polk *g*	13	15	13	13	13	13	14								
Hertford	10	10	10	10	10	10	8	8	7	7	6	5	5	5	6
Hoke	10	10	8	6	8	9	11	10	11	12	14	14	14	12	11
Hyde	2	1	1	2	1	2	1	1	1	1	1	1	1	1	
Iredell-Alexander	11	21	18	20	19	20	26	29	34	37	39	38	38	39	29
Jackson	5	5	6	6	6	8	7	7	6	5	6	6	3	7	2
Johnston	24	22	23	26	25	25	24	28	24	23	18	23	25	20	19
Jones				1	2	1	4	4	3	3	3	3	3	3	3
Lee	8	8	8	10	10	11	13	13	13	14	16	13	11	13	10
Lenoir	17	22	19	20	17	20	18	20	22	23	20	22	17	19	20
Lincoln	15	16	14	13	14	16	11	11	12	13	14	13	10	12	12
Macon-Clay	6	6	7	7	7	7	6	8	8	9	6	8	4	3	2
Madison	11	11	12	8	11	11	11	11	5	12	7	5	3	4	5
Martin *t*	11	16	14	12	13	10	10	10	10	10	10	8	7	4	
Martin-Washington-Tyrrell															10
McDowell	6	6	5	5	6	7	8	7	8	7	9	12	10	10	11
Mecklenburg	97	104	107	110	115	109	121	117	104	119	125	128	124	117	104
Mitchell-Avery															8
Mitchell-Watauga	4	5	8	10	10	7	7	8	7	9	8	6	5	5	
Montgomery	6	8	11	10	9	9	8	9	9	10	11	9	10	9	7
Moore	16	16	17	21	20	20	19	21	17	20	22	17	21	21	18
Nash *m*	26	25	26	30	30	33	34	32	31	30	30	33			
New Hanover	38	40	46	51	46	44	42	40	41	38	32	38	37	35	25
Northampton	13	10	11	11	10	10	10	11	9	9	6	3	4	5	4
Onslow	9	8	7	7	5	6	6	5	5	6	5	5	5	6	6
Orange *h*			6												
Pamlico	4	5	6	5	5	4	5	5	5	5	5	4	4	4	4
Pasquotank-Camden-Currituck-Dare															12

STATUS OF MEMBERSHIP BY COUNTIES—Continued

County	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Pasquotank-Camden-Dare	15	16	11	19	18	17	18	19	18	16	14	17	14	11	.....
Pender	3	1	1	2	2	2	1	1	1	1	1	1	1	1	1
Perquimans *i*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Person	12	10	11	10	10	10	8	7	7	7	6	6	6	6	7
Pitt	18	24	19	24	23	24	26	24	26	31	24	27	27	20	14
Polk *j*	.....	.....	.....	.....	.....	.....	.....	5	6	6	6	6	5	7	7
Randolph	12	13	15	14	14	13	14	12	10	11	10	8	7	14	10
Richmond	13	12	14	13	14	16	19	18	18	18	14	17	17	15	16
Robeson	31	35	34	33	27	29	30	31	28	28	21	24	21	22	23
Rockingham	16	20	23	25	21	23	26	23	24	21	20	24	24	21	22
Rowan	24	28	31	32	32	36	40	40	40	42	35	35	39	33	24
Rutherford	18	20	12	18	22	21	21	22	24	22	22	22	21	21	19
Sampson	11	13	14	12	13	17	15	14	13	13	10	13	13	14	14
Scotland	9	10	12	12	12	12	12	12	12	12	12	10	11	11	11
Stanly	11	15	12	11	12	15	14	13	15	14	14	16	15	13	12
Stokes	5	10	6	12	9	10	10	5	7	8	6	2	6	6	1
Surry	28	28	25	25	24	26	22	17	20	22	20	20	13	17	12
Swain	2	3	1	4	3	1	1	1	.....	.....	.....	.....	.....	.....	.....
Transylvania	1	1	1	5	6	4	8	4	5	7	4	2	2	1	3
Tyrrell *k*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union	14	16	17	17	18	18	19	19	16	16	14	13	10	9	10
Vance	5	11	11	10	10	12	11	12	11	11	11	12	8	7	8
Wake	81	68	73	76	85	73	78	79	78	80	84	94	87	86	87
Warren	3	8	8	7	7	6	6	6	6	6	6	6	6	6	5
Washington-Tyrrell *u*	.....	.....	10	9	9	9	8	8	6	6	5	3	3	3	.....
Watauga *l q*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watauga-Ashe	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Wayne	27	28	24	33	32	29	32	34	32	38	38	38	30	32	22
Wilkes *o*	10	10	11	10	10	10	10	9	14	11	10	10	11	10	.....
Wilkes-Alleghany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
Wilson	25	29	31	28	31	31	32	34	34	35	31	28	28	22	21
Yadkin	10	2	5	4	3	2	3	2	2	3	5	10	.....	4	1
Yancey	3	3	1	1	1	1	1	2	7	5	3	4	1	1	.....
Totals	1306	1497	1491	1571	1592	1606	1657	1666	1691	1738	1669	1694	1600	1559	1363

a The figures for 1926 are for Alamance-Caswell; for the other years, for Alamance only; *b* See Iredell-Alexander; *c* See Pasquotank-Camden-Dare; *d* For 1926, see Alamance-Caswell; *e* See Macon-Clay; *f* See Pasquotank-Camden-Dare; *g* See Henderson or Polk for years after 1925; *h* See Durham-Orange; *i* See Chowan-Perquimans; *j* See Henderson-Polk for 1912-1925; *k* See Washington-Tyrrell; *l* See Mitchell-Watauga; *m* See Edgecombe-Nash for 1931; for the other years Edgecombe only; *n* See Wilkes-Alleghany; *o* See Wilkes-Alleghany; *p* See Watauga-Ashe; *q* See Watauga-Ashe; *r* See Mitchell-Avery; *s* See Pasquotank-Camden-Currituck-Dare; *t* See Martin-Washington-Tyrrell; *u* See Martin-Washington-Tyrrell.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Abel, J. F.....Waynesville
Abernathy, H. N.....Charlotte
*Achorn, John W.....Pinebluff
Adams, C. A.....Durham
Adams, Charles E.....Gastonia
Adams, M. R.....Statesville
*Alexander, Annie L.....Charlotte
Alexander, Jas. R.....Charlotte
*Allen, Rufus L.....Waynesville
*Alston, B. P.....Epsom
*Ambler, C. P.....Asheville
Anders, McT. G.....Gastonia
*Anderson, Albert .....Raleigh
Anderson, Chas. A.....Burlington
Anderson, Thos. Eli.....Statesville
*Archery, L. M.....Concord
*Asbury, F. E.....Asheboro
Ashecraft, J. E.....Fayetteville
Ashworth, Benj. L.....Marion
Ashworth, W. C.....Greensboro
*Attmore, Geo. S.....Stonewall
Averitt, K. G.....Cedar Creek
*Bahnson, H. T.....Winston-Salem
Baker, J. M.....Tarboro
Banner, Chas. W.....Greensboro
*Barrier, P. A.....Mt. Pleasant
Bass, H. H.....Durham
Battle, J. T. J.....Greensboro
*Battle, Kemp P.....Raleigh
*Battle, S. W.....Asheville
Beall, Wm. P.....Black Mountain
*Bellamy, W. J. H.....Wilmington
*Boddie, N. P.....Durham
*Bolton, Mahlon .....Rich Square
*Booth, Samuel D.....Oxford
Brown, G. A.....Mt. Ulla
Brown, J. S., Sr.....Hendersonville
*Brownson, W. C.....Asheville
*Bullock, D. W.....Wilmington
Bullock, Thomas C.....Autryville
Burrus, John T.....High Point
Burt, S. P.....Louisburg
Bynum, John .....Winston-Salem
*Caldwell, D. G.....Concord
Carroll, E. D. Dixon.....Raleigh
Caviness, Zebulon M.....Raleigh
*Cheatham, Archibald.....Durham
Cheesborough, Thos. P.....Asheville
*Clark, G. L.....Clarkton
Cobb, Wm. H., Jr.....Goldsboro
Cotton, Clyde E.....Asheville
*Council, J. B.....Salisbury
*Covington, J. M.....Wadesboro
Cox, E. L.....Jacksonville
*Croom, J. D.....Maxton
Crowell, A. J.....Charlotte
Crowell, L. A.....Lincolnton
Daligny, Charles .....Troy
*Dalton, David N.....Winston-Salem
Davis, Thomas W.....Winston-Salem
Davidson, John E. S.....Charlotte
DeArmon, J. McC.....Charlotte
*Denny, Wm. W.....Pink Hill
Dickinson, E. T.....Wilson
*Dillard, Richard, Jr.....Edenton
Dixon, Guy E.....Hendersonville
Dixon, Wm. H.....Kinston
*Dodson, H. H.....Greensboro
*Duffy, Charles .....New Bern
*Duffy, Francis.....New Bern
Eddleman, H. M.....Gastonia
Edgerton, Jas. L.....Hendersonville
*Edwards, G. C.....Hookerton
Edwards, J. D.....Siler City
Ellis, R. C.....Shelby
*Faison, I. W.....Charlotte
*Faison, Wm. W.....Goldsboro
*Fletcher, M. H.....Asheville
Flippin, Samuel T.....Siloam
*Fox, M. F.....Guilford College
*Freeman, Richard A.....Burlington
Galloway, W. C.....Wilmington
Garrison, David A.....Gastonia
Gibbon, Robert L.....Charlotte
*Gilmer, Chas. S.....Greensboro, R. 6
Gilreath, Frank H.....N. Wilkesboro
Goley, Wm. R.....Graham
*Goodman, E. G.....Lanvale
Goodwin, A. W.....Raleigh
Gouger, Geo. J.....Concord
Gove, Anna M.....Greensboro
Grady, James C.....Kenly

*Deceased.

Grady, Wm. Earle.....Tryon
*Graham, Joseph .....Charlotte
*Graham, Wm. A.....Charlotte
*Griffin, J. A.....Clayton
Griggs, W. T.....Poplar Branch
*Hall, Wright .....Wilmington
*Halsey, B. F.....Roper
Hardy, Ira M.....Kinston
*Hargrove, R. H.....Robersonville
Harris, F. R.....Henderson
*Harriss, I. A.....Weaverville
Harrison, Edmund .....Greensboro
Harris, A. H.....Wilmington
Hathcock, Thos. A.....Norwood
Hays, Benj. K.....Oxford
*Haywood, F. J.....Raleigh
*Haywood, Hubert, Sr.....Raleigh
*Herring, B. S.....Wilson
Hicks, I. F.....Dunn
*Hicks, Romeo.....Henrietta
*Hicks, Wm. N.....Durham
Highsmith, Chas. .....Dunn
Highsmith, J. F.....Fayetteville
Highsmith, Seavy .....Fayetteville
*Hill, L. H.....Germantown
Holloway, Robt. L.....West Durham
Holt, Wm. P., Sr.....Erwin
*Holt, Wm. T.....Greensboro
Hooks, Thel .....Smithfield
Houck, Albert F.....Lenoir
Hubbard, C. C.....Farmer
*Hudson, Wm. L.....Dunn
*Hughes, Francis W.....New Bern
Hunter, L. W.....Charlotte
Ingram, Chas. B.....Mt. Gilead
*Irwin, J. R.....Charlotte
*Jenkins, Chas. L.....Raleigh
Jewett, Robert D.....Wilmington
John, Peter .....Laurinburg
Johnson, N. M.....Durham
Jonas, John F.....Marion
Jones, Clara E.....Goldsboro
Jones, A. G.....Walnut Cove
Jones, W. M.....Gastonia
Jordan, Chas. S.....Asheville
Jordan, T. M.....Raleigh
Judd, J. M.....Varina
Julian, Charles A.....Greensboro
Kapp, Henry H.....Winston-Salem
Kent, Alfred A.....Winter Park, Fla.
Kerr, J. Edwin.....Winston-Salem
King, Parks M.....Charlotte
Kirby, Guy S.....Marion
*Knight, J. B. H.....Williamston
Knight, Wm. P.....Greensboro
Knox, A. W.....Raleigh
Koonce, S. E.....Wilmington
Lamm, Isaac W.....Raleigh
*Laughinghouse, Chas. O'H.....Raleigh
*Leggett, Kenelm.....Hobgood
Lewis, Geo. W.....Wilson
Lewis, H. W.....Jackson
*Lewis, R. H.....Raleigh
Linville, A. Y.....Winston-Salem
Lockett, Everett A.....Winston-Salem
*Long, Benj. L.....Hamilton
*Long, Geo. W.....Graham
Long, H. F.....Statesville
*Long, J. W.....Greensboro
*Love, W. J.....Wilmington
Lyle, S. H.....Franklin
McAnally, W. J.....High Point
McBrayer, L. B.....Southern Pines
McCain, Wm. R.....High Point
McCampbell, John.....Morganton
McCracken, J. R., OALR..Waynesville
*McDonald, A. D.....Wilmington
McGeachy, R. S.....Greenville
McGee, J. W.....Raleigh
McIver, Lynn .....Sanford
*McKay, A. M.....Summerville
*McKay, John A.....Buies Creek
McKay, Joseph F.....Buies Creek
*McKee, James .....Raleigh
*McKenzie, W. W.....Salisbury
McLaughlin, C. S.....Charlotte
McLaughlin, J. E.....Statesville
McMillan, Benj. F.....Red Springs
*McMillan, J. D.....Lumberton
*McMillan, J. L.....Red Springs
McMillan, W. D.....Wilmington
*McNeill, J. W.....Fayetteville
*McNeill, Wm. M.....Buies Creek
Malloy, S. A.....Yanceyville
Manning, I. H.....Chapel Hill
Manning, J. M.....Chapel Hill

*Deceased.

Matthews, Jas. O.....Clinton
Menzies, H. C.....Hickory
*Michaux, E. R.....Greensboro
*Miller, J. F.....Goldsboro
Miller, Robert B.....Goldsboro
*Minor, Chas. L.....Asheville
*Misenheimer, C. A.....Charlotte
*Misenheimer, Theo. F.....Morven
*Monroe, W. A.....Sanford
*Montgomery, John C.....Charlotte
Moore, C. E.....Wilson
*Moore, Edwin G.....Elm City
Morris, J. A.....Oxford
Moseley, Chas. W.....Greensboro
Munroe, J. P.....Charlotte
*Murphy, John G., OALR....Wilmington
Myers, John Q.....Charlotte
Nelson, R. J.....Robersonville
Nichols, Rhodes E.....Durham
*Nicholson, J. L.....Richland
Nicholson, P. A.....Washington
*Nicholson, Sam T.....Washington
Nisbet, W. O.....Charlotte
*Noble, R. J.....Selma
Nobles, Jos. E.....Greenville
Parker, G. E.....Benson
Parrott, J. M.....Kinston
Parrott, Wm. Thomas.....Kinston
*Pate, Wm. T.....Gibson
*Pemberton, Wm. D.....Concord
Person, James B., Jr.....Selma
*Perry, M. P.....Macon
Petrie, Robt. Wm., OALR.....Lenoir
Pfohl, Samuel F.....Winston-Salem
*Pharr, T. F.....Concord
*Pharr, Wm. W.....Charlotte
*Phillips, Matthew D.....Dalton
*Picot, L. J.....Littleton
Pope, Henry T.....Lumberton
Pressly, G. W.....Charlotte
*Prince, D. M.....Laurinburg
Rankin, W. S.....Charlotte
Redding, Alex H.....Asheboro
*Register, Edw. C.....Charlotte
Register, F. M.....Goldsboro
Reid, Geo. P.....Forest City
Reitzel, Claude E.....High Point
Reynolds, C. V.....Asheville
Ricks, Leonard E.....Fairmont
*Ritter, F. W.....Moyock
*Roberson, Chas. .....Greensboro
Rodman, J. C.....Washington
Rodwell, J. W.....Mocksville
Rogers, Wiley A.....Franklin
Royster, H. A.....Raleigh
*Royster, W. I.....Raleigh
Sawyer, C. J.....Windsor
*Schaub, O. P.....Winston-Salem
Schonwald, J. T.....Wilmington
Sevier, D. E.....Asheville
Sevier, J. T.....Asheville
*Schaffner, J. F., Sr.....Winston-Salem
*Shamburger, J. B.....Star
Shaw, W. G.....Wagram
Shields, H. B.....Carthage
Sikes, G. L.....Salemburg
*Sikes, G. T.....Creedmoor
*Smith, J. B.....Pilot Mountain
*Smith, R. A.....Goldsboro
Smoot, J. E.....Concord
*Snipes, E. P.....Jonesboro
Spainhour, Ellis H.....Winston-Salem
*Speight, R. H., Sr.....Whitakers
Spencer, W. O.....Winston-Salem
Stamps, Thos. .....Lumber Bridge
Stanton, D. A.....High Point
*Stevens, J. A.....Clinton
Stevens, M. L.....Asheville
Stewart, H. D.....Monroe
Stokes, Jas. Ernest.....Salisbury
Street, M. E.....Glendon
Strickland, Edw. F.....Winston-Salem
Stringfield, Thos. .....Waynesville
Strong, Chas. Moore.....Charlotte
Summerell, E. M.....China Grove
*Summers, Chas. L.....Baltimore, Md. (Forsyth Co.)
*Tayloe, D. T., Sr.....Washington
*Taylor, I. M.....Morganton
Taylor, Wm. L.....Oxford
Tennent, G. S.....Asheville
*Thomas, G. G.....Wilmington
*Trantham, H. T.....Salisbury
*Tull, Henry .....Kinston
Van Poole, C. M.....Salisbury
Vestal, W. J.....Lexington

*Deceased.

*Von Ruck, Karl.....Asheville
Walker, H. D.....Elizabeth City
*Ward, W. H.....Plymouth
*Way, J. Howell.....Waynesville
Weaver, H. B.....Asheville
Wessell, Jno. C.....Wilmington
*Wharton, L. D.....Smithfield
Whisnant, A. M.....Charlotte
*Whitaker, R. A.....Kinston
*White, J. W.....Wilkesboro
*Whitehead, John.....Salisbury
*Whitehead, W. H.....Rocky Mount
Whitfield, Wm. Cobb.....Salisbury
*Whittington, W. P.....Asheville
Whittington, Wm. W.....Snow Hill
Wilkins, S. A.....Dallas
Williams, John D.....Guilford Station
*Williams, J. H.....Asheville
Wilson, A. R.....Greensboro
Wood, J. W.....Boiling Springs
Wright, Jno. B.....Raleigh
Yarborough, Richard F.....Louisburg
*Young, R. S.....Concord

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

*L. McL. Tiffany.....Baltimore, Md.
*W. W. Keen.....Philadelphia, Pa.
J. Allison Hodges.....Richmond. Va.
*R. L. Payne.....Norfolk, Va.
*J. N. McCormack.....Bowling Green, Ky.
R. L. Payne, Jr.....Norfolk, Va.
*J. L. Ludlow, C.E.....Winston-Salem
Paul V. Anderson.....Richmond, Va.
Stuart McGuire.....Richmond, Va.
William J. Mayo.....Rochester, Minn.
William Seaman Bainbridge.....New York, N. Y.
William Sharpe.....New York, N. Y.
William McKim Marriott.....St. Louis, Mo.
James K. Hall.....Richmond, Va.

*Deceased.

OFFICERS, 1932-1934

OFFICERS, 1932-1933

President—Dr. John B. Wright.....Raleigh
President-Elect—Dr. I. H. Manning.....Chapel Hill
First Vice-President—Dr. J. R. McCracken.....Waynesville
Second Vice-President—Dr. W. G. Suiter.....Weldon
Secretary-Treasurer—Dr. L. B. McBrayer (1931-1934).....Southern Pines

OFFICERS, 1933-1934

President—Dr. I. H. Manning.....Chapel Hill
President-Elect—Dr. P. P. McCain.....Sanatorium
First Vice-President—Dr. R. L. Felts.....Durham
Second Vice-President—Dr. H. D. Walker.....Elizabeth City
Secretary-Treasurer—Dr. L. B. McBrayer, 1931-1934.....Southern Pines

COUNCILLORS, 1931-1934

First District—Dr. C. B. Williams.....Elizabeth City
Second District—Dr. K. B. Pace.....Greenville
Third District—Dr. J. T. Hoggard.....Wilmington
Fourth District—Dr. C. F. Strosnider.....Goldsboro
Fifth District—Dr. A. B. Holmes.....Fairmont
Sixth District—Dr. W. M. Coppridge.....Durham
Seventh District—Dr. Addison G. Brenizer.....Charlotte
Eighth District—Dr. Thos. C. Redfern.....Winston-Salem
Ninth District—Dr. M. R. Adams*.....Statesville
Dr. J. W. Davis†.....Statesville
Tenth District—Dr. Joseph B. Greene.....Asheville

CHAIRMEN OF SECTIONS, 1933-1934

Public Health and Education—Dr. Robert E. Rhyne.....Gastonia
Surgery—Dr. Addison G. Brenizer.....Charlotte
Opthalmology and OtoRhinoLaryngology—Dr. Vance P. Peery.....Kinston
Gynecology and Obstetrics—Dr. John Lester Ranson.....Charlotte
Pediatrics—Dr. S. Stewart Saunders.....High Point
Practice of Medicine—Dr. P. A. Shelburne.....Greensboro

DELEGATES TO AMERICAN MEDICAL ASSOCIATION, 1933-1935

Dr. M. L. Stevens, 1933-1934 inclusive.....Asheville
Dr. J. K. Pepper, 1933.....Winston-Salem
Dr. T. W. M. Long, 1933.....Roanoke Rapids
Alternate—Dr. T. Preston White.....Charlotte
Dr. D. A. Stanton, 1934 and 1935.....High Point
Dr. R. L. Pittman, 1934 and 1935.....Fayetteville

DELEGATES TO MEDICAL SOCIETY OF VIRGINIA

Dr. B. M. Nicholson.....*Enfield*
Dr. J. W. Parker.....Seaboard
Dr. J. N. Robertson.....Fayetteville
Dr. R. W. Taylor.....Oxford

*Died during term of office.
†Appointed by President Manning to fill unexpired term of Dr. M. R. Adams.

DELEGATES TO SOUTH CAROLINA MEDICAL SOCIETY

Dr. R. M. Beam.....Roxboro
Dr. Lucius N. Glenn.....Gastonia
Dr. H. W. McKay.....Charlotte

DELEGATES TO NORTH CAROLINA DENTAL ASSOCIATION

Dr. Hugh A. Thompson.....Raleigh
Dr. J. W. Campbell.....Gastonia
Dr. R. A. Allgood.....Fayetteville
Dr. Thurman D. Kitchin.....Wake Forest

COMMITTEES

Medical Society Foundation

Dr. M. L. Stevens, 4 years.....Asheville
Dr. L. B. McBrayer, 3 years.....Southern Pines
Dr. J. B. Sidbury, 1 year.....Wilmington
Dr. J. M. Parrott, 2 years.....Raleigh

Obituaries

Dr. C. M. Van Poole, *Chairman*.....Salisbury
Dr. C. R. Sharpe.....Lexington
Dr. W. Houston Moore.....Wilmington

Legislation

Dr. Benj. J. Lawrence, *Chairman*.....Raleigh
Dr. T. W. M. Long.....Roanoke Rapids
Dr. Wm. H. Smith.....Goldsboro

Moore County Medical Society Medal

Dr. A. H. McLeod, *Chairman*.....Aberdeen
Dr. Deryl Hart.....Durham
Dr. Wm. deB. MacNider.....Chapel Hill

Committee to Confer with State Nurses Association

Dr. Addison G. Brenizer, *Chairman*.....Charlotte
Dr. V. M. Hicks.....Raleigh

Committee on Printing

Dr. L. B. McBrayer.....Southern Pines
Dr. J. W. Dickie.....Southern Pines
Dr. E. C. Judd.....Raleigh

Committee on Hospitals

Dr. J. F. Highsmith, Sr., *Chairman*.....Fayetteville
Dr. Ivan M. Proctor.....Raleigh
Dr. Jas. W. Davis.....Statesville
Dr. Foy Roberson.....Durham

Committee on Cancer

Dr. C. C. Carpenter, *Chairman*.....Wake Forest
Dr. P. F. Whitaker.....Kinston
Dr. J. L. Adams.....Asheville

BOARD OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

1932-1938

Dr. K. G. Averitt, *President* ..... Cedar Creek
Dr. Benj. J. Lawrence, *Secretary* ..... Raleigh
Dr. Ben F. Royal ..... Morehead City
Dr. F. Webb Griffith ..... Asheville
Dr. Hamilton W. McKay ..... Charlotte
Dr. J. W. Vernon ..... Morganton
Dr. Wm. H. Smith ..... Goldsboro

STATE BOARD OF EXAMINERS FOR NURSES

Miss Bessie M. Chapman, R.N., *President* ..... Greensboro
Miss Lula West, R.N., *Secretary-Treasurer and Educational Director* ..... Mt. Airy
Miss Josephine Kerr, R.N. ..... Charlotte
Dr. D. A. Garrison, (From Hospital Association, 1931-1934) ..... Gastonia
Dr. C. H. Peete, (From Medical Society, 1931-1934) ..... Warrenton

Arrangements

Dr. J. W. Dickie, *Chairman* ..... Southern Pines
Dr. W. C. Mudgett ..... Southern Pines
Dr. S. M. Bittenger ..... Sanatorium
Place of Meeting ..... Pinehurst
Date ..... April 30, May 1, 2, 1934
Headquarters ..... The Carolina

PROGRAM
GENERAL SESSIONS, 1933

FIRST GENERAL SESSION

TUESDAY, APRIL 18, 9:30 A. M.

(Ball Room)

Miss Dorothy Siegel, *Reporter*

Call to Order—Dr. Verne S. Caviness, Chairman, Committee on Arrangements, Raleigh.

Invocation—Rev. E. C. Few, Pastor Edenton Street Methodist Church, Raleigh.

Announcements—Dr. Verne S. Caviness, Chairman, Committee on Arrangements.

The President—Dr. John B. Wright, Raleigh.

Acceptance of Gavel made in Asheville, N. C., of North Carolina wood and presented to the Medical Society of the State of North Carolina by Dr. M. L. Stevens, Asheville, President 1931-1932, and Mrs. Stevens.

Presentation of the Past President's Jewel to Dr. John B. Wright by Dr. I. H. Manning, President-Elect.

Presentation of Moore County Medical Society Medal for the best paper presented before the last meeting of this society by a Fellow of this Society.

Committee of Award—Dr. J. W. Dickie, Southern Pines; Dr. J. M. Parrott, Kinston; Dr. John Q. Myers, Charlotte.

Address—Guest Speaker—Dr. Olin West, Secretary-Manager American Medical Association, Chicago, Ill.

Address—Dr. Addison G. Brenizer, Charlotte, Councillor Seventh District.

Address—Dr. J. M. Northington, Charlotte, Editor Southern Medicine & Surgery.

Address—Guest Speaker—Dr. Thomas McCrae, Philadelphia, "Methods in Diagnosis."

Address—G. Fred Hale, D.D.S., Raleigh, "Some Problems of Etiology in Orthodontia." From North Carolina Dental Society.

Address—Dr. Ernest M. Poate, Southern Pines, Psychiatrist-in-chief, Duke School of Medicine, "Teaching Psychiatry."

Address—Dr. H. A. Royster, Raleigh, "An Account of the Surgical Service Dix Hill State Hospital for the Insane." From Section on Surgery.

Address—Albert Coates, Ph.D., Chapel Hill, "The Physician and Administration of Justice."

SECOND GENERAL SESSION

DEDICATION

CLARENCE A. SHORE STATE LABORATORY OF HYGIENE BUILDING

By

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

TUESDAY AFTERNOON, APRIL 18, 1933, 5:30 P.M.

(At the Building, Jefferson Street, just off Glenwood Avenue, Raleigh)

COMMITTEE:

Dr. John B. Wright, President Medical Society, Chairman; Dr. James M. Parrott, State Board of Health, Secretary; Dr. I. H. Manning, Dr. L. B. McBrayer, Dr. H. B. Haywood.

Dr. John B. Wright, presiding.

Invocation—Bishop Kenneth Pfohl.

Music.

Introduction of the Governor—Dr. John T. Burrus.

Value of a Science Laboratory to the State—Gov. J. C. B. Ehringhaus.

Music.

Doctor Shore and Science—Dr. H. V. Wilson, Chapel Hill.

Unveiling Tablet—George Williams Worth, Raleigh.

Doctor Clarence A. Shore—Dr. G. M. Cooper, Raleigh.

Benediction—Rev. Howard E. Rondthaler, Raleigh.

COPY OF INSCRIPTION ON TABLET

CLARENCE ALBERT SHORE
1873 :-: 1933
ORGANIZED AND DIRECTED THE STATE LABORATORY OF HYGIENE
1908 :-: 1933

His scientific knowledge, his unselfish devotion to service, his high character, and above all, his friendly love of humanity, he gave freely to his State.
The Medical Profession ascribes to him its highest praise as one of it most noted sons. The people of North Carolina accord to him Honor as one of its most distinguished citizens.

"One who never turned his back but marched breast forward,
Never doubted clouds would break,
Never dreamed, though right were worsted, wrong would triumph,
Held we fall to arise, are baffled to fight better,
Sleep to wake." —*Browning.*

By Special act of the North Carolina Legislature 1933
This Building is dedicated to
CLARENCE ALBERT SHORE

THIRD GENERAL SESSION

WEDNESDAY, APRIL 19, 9:00 A.M.

(Ball Room)

Miss Dorothy Seigel, *Reporter*

Address—"Nutritional Disturbance in Relation to Dental Disease," Dr. O. L. Presnell, D.D.S., Asheboro. From North Carolina Dental Society.

"Consideration of the Problems of Syphilis in North Carolina," Dr. G. Grady Dixon, Ayden. (Member State Board of Health).

"Incidence of Carcinoma of the Uterus in North Carolina: Its Treatment," Dr. R. A. Ross, Durham. From Section on Gynecology and Obstetrics.

Address—Dr. John A. Ferrell, President American Public Health Association, New York City and Clinton, N. C.

"Conservatism in the Treatment of Tuberculosis: A Progressive Program," Dr. C. H. Cocke, Asheville. From Section on Practice of Medicine.

"Childhood Tuberculosis," Dr. J. Buren Sidbury, Wilmington. From Section on Pediatrics.

"The Problem of the Cross-eyed Child, An Appeal to the Family Physician," Lantern Slides. Dr. W. P. Speas, Winston-Salem. From Section on Opthalmology and OtoRhinoLaryngology.

"The Need of a Careful Diagnostic Study and a Better Understanding of the Neuro-phychiatric Case," Dr. Archie A. Barron, Charlotte.

11:45 a. m.—Election two members of the State Board of Health.

12:00 m.—Conjoint Session of the Medical Society of the State of North Carolina and the State Board of Health.

FOURTH GENERAL SESSION

WEDNESDAY, APRIL 19, 2:00 P.M.

REPORT OBITUARY COMMITTEE

Dr. C. M. Van Poole, Chairman

(Room 331)

NORTH CAROLINA DOCTORS WHO HAVE DIED DURING THE YEAR

*Dr. E. A. Abernethy.....Chapel Hill
*Dr. George Alexander.....Asheville
*Dr. Chase P. Ambler (Honorary).....Asheville
*Dr. Albert Anderson (Honorary and Past President).....Raleigh
Dr. R. B. Beckwith.....Fayetteville
*Dr. Needham P. Boddie (Honorary).....Durham
Dr. V. R. Butt.....Bakersville
*Dr. G. A. Caton.....New Bern
*Dr. Jefferson B. Council (Honorary).....Salisbury
Dr. Desmond E. Council.....Angier
*Dr. W. H. Crowell.....Whiteville
Dr. J. I. Davis.....Oteen
*Dr. Joseph Dixon.....Greenville
*Dr. J. B. Ewing.....Boonford
Dr. R. Frank Flowe.....Kannapolis
*Dr. R. P. Floyd.....New Hope
*Dr. Fred T. Foard.....Hickory
Dr. Frederick C. Hyatt.....Greensboro
*Dr. Charles L. Jenkins (Honorary).....Caledonia Prison Farm
*Dr. Thos. J. Jones.....Larrsing
Dr. James L. Kernodle.....Burlington
*Dr. Virgil W. Leggett.....Hobgood
*Dr. E. E. Little.....Statesville
*Dr. William M. Lyday.....Brevard
Dr. J. F. Maxwell.....Kinston
Dr. Charles McAnnally.....Madison
*Dr. William B. McCanless.....Danbury
*Dr. L. C. McIntosh.....Henderson
Dr. Sam B. Medford.....Clyde
*Dr. J. E. Moore.....Mount Olive
*Dr. J. G. Murphy (Honorary and Past President).....Wilmington
Dr. R. W. Myers.....Fullers
*Dr. George W. Norman.....Jamestown

*Fellow Medical Society of the State of North Carolina.

Dr. A. L. Plummer ..... Denton
Dr. J. A. Pollock ..... Kinston
*Dr. J. L. Poston ..... Statesville
Dr. W. B. Pritchard ..... Faison
*Dr. Arthur F. Reeves ..... Asheville
*Dr. Charles L. Scott ..... Sanford
*Dr. John B. Shamburger (Honorary) ..... Star
*Dr. Clarence A. Shore ..... Raleigh
*Dr. Rogers A. Smith (Honorary) ..... Goldsboro
*Dr. Jacob L. Sowers ..... Lexington
Dr. Joseph P. Speight ..... Rocky Mount
Dr. J. C. Staley ..... Burlington
Dr. T. J. Stephenson ..... Seaboard
*Dr. Ralph S. Stevens ..... Princeton
*Dr. David T. Tayloe (Honorary and Past President) ..... Washington
*Dr. J. M. Templeton ..... Cary
Dr. Fred R. Thomas ..... Winston-Salem
Dr. W. A. Thompson ..... Rutherfordton
*Dr. Julian S. Woodruff ..... Charlotte
Dr. J. J. Young ..... Clayton
Total—53.

FIFTH GENERAL SESSION

WEDNESDAY, APRIL 19, 8:15 P. M.

(New Dining Room)

Mr. Shell, *Reporter*

Report of Board of Medical Examiners.
Reading of any papers on program not heretofore read.
Unfinished Business.
Report from House of Delegates.
Installation of officers 1933-1934.
Adjourn sine die.

SECTION MEETINGS

SECTION ON SURGERY

TUESDAY, APRIL 18, 2:00 P. M.

(New Dining Room)

Dr. Wm. H. Sprunt, Jr., Winston-Salem, *Chairman*

Mr. Shell, *Reporter*

1. Sprunt, Dr. Wm. H., Winston-Salem (Chairman's Address)—"Appendicitis."
2. Davis, Dr. R. B., Greensboro—"The Uses and Abuses of the Rectum." Discussion, Dr. J. D. Highsmith, Fayetteville.
3. Davis, Dr. Stephen W., Charlotte—"Oxygen Therapy."
4. Moore, Dr. Julian A., Asheville—"Intrapleural Pneumolysis as an Adjunct to Artificial Pneumothorax Therapy of Pulmonary Tuberculosis." Discussion, Dr. P. P. McCain, Sanatorium.
5. McCutcheon, Dr. W. B., Durham—"Mesenteric Adenitis." Discussion, Dr. Hunter Sweaney, Durham.

6. Bost, Dr. T. C., Charlotte—"Pancreatic Calculi." Discussion, Dr. J. P. Kennedy, Charlotte.

7. Valk, Dr. A. de Talma, Winston-Salem—"Perforating Gastric Ulcer in Children."

8. Brenizer, Dr. Addison G., Charlotte—"Aseptic Anastomosis of the Gastro-Intestinal Tract." Discussion, Dr. Donnell B. Cobb, Goldsboro.

9. Royster, Dr. H. A., Raleigh—"An Account of the Surgical Service at the Dix Hill State Hospital for the Insane." (Before First General Session, Tuesday, April 18th.)

SECTION ON PRACTICE OF MEDICINE

TUESDAY, APRIL 18, 2:00 P. M.

(Ball Room)

Dr. Paul F. Whitaker, Kinston, *Chairman*

Miss Dorothy Siegal, *Reporter*

1. Carr, Dr. M. L., LaGrange—"The Treatment of Diabetes Mellitus by the General Practitioner." Discussion, Dr. Wingate M. Johnson, Winston-Salem.

2. Nisbet, Dr. D. Heath, Charlotte—"Parasitic Infection: Incidence in the Piedmont Carolinas." Discussion, Dr. Charles DeWitt Colby, Asheville.

3. Strosnider, Dr. C. F., Goldsboro—"My Experience in the Treatment of Undulant Fever." Discussion, Dr. W. B. Dewar, Raleigh.

4. Kinlaw, Dr. W. Bernard, Rocky Mount—"Hypertensive Heart Disease." Discussion, Dr. J. M. Northington, Charlotte.

5. Ruffin, Dr. J. M., Durham—"The Treatment of Pellagra with Certain Preparations of Liver." Discussion, Dr. Frederick R. Taylor, High Point.

6. Shelbourne, Dr. P. A., Greensboro—"Agranulocytosis: A Report of Two Cases with Autopsy Findings."

7. Boney, Dr. E. R., Kinston—"Infectious Mononucleosis." Discussion of these two papers to be opened by Dr. O. C. Hansen, Durham.

8. Cocke, Dr. C. H., Asheville—"Conservatism in the Treatment of Tuberculosis: A Progressive Program." (Before Third General Session, Wednesday, April 19th.)

SECTION ON PUBLIC HEALTH AND EDUCATION

TUESDAY, APRIL 18, 2:00 P. M.

(Manteo Room)

Dr. Z. V. Moseley, Kinston, *Chairman*

Mrs. Margaret Griffin, *Reporter*

1. Ferrell, Dr. John A., President of the American Public Health Association, New York—"Qualifications for Health Personnel."

2. Waller, Dr. C. E., Assistant Surgeon General USPHS, Washington, D. C.—"Relationship Between the Health Department and the Practicing Physician."

3. Baity, Mr. H. G., Dean of the School of Engineering, University of North Carolina, Chapel Hill—"The Function of the Sanitary Engineer in Public Health Work."

4. Janney, Dr. J. H., Annapolis, Maryland.

SECTION ON PEDIATRICS

WEDNESDAY, APRIL 19, 2:00 P.M.

(New Dining Room)

Dr. C. A. Street, Winston-Salem, *Chairman*

Mr. Shell, *Reporter*

1. Street, Dr. C. A. (Chairman's Address)—"Diabetes of Childhood."

2. Adams, Dr. J. R., Charlotte—"Hypoglycemia: A Cause of Convulsions in Childhood." Discussion, Dr. S. F. Ravenel, Greensboro.

3. Asbill, Dr. D. S., Statesville—"Some Common Eye Conditions in Children." Discussion, Dr. Lewis W. Elias, Asheville.

4. Root, Dr. A. S., Raleigh—"Intra Nasal Therapy in Children." Discussion, Dr. Myers Hunter, Charlotte.

5. Sasser, Dr. Thos. J., Charlotte—"Nutrition and Development of the School Age Child." Discussion, Dr. E. K. McLean, Charlotte.

6. Sidbury, Dr. J. Buren, Wilmington—"Childhood Tuberculosis." (Before Third General Session, Wednesday, April 19th.)

SECTION ON OPTHALMOLOGY AND OTORHINOLARYNGOLOGY

WEDNESDAY, APRIL 19, 2:00 P.M.

(Ball Room)

Dr. C. R. Reaves, Greensboro, *Chairman*

Dr. Vance P. Peery, Kinston, *Secretary*

Miss Dorothy Siegel, *Reporter*

1. Reaves, Dr. Charles R., Greensboro (Chairman's Address)—"Sinusitis in Children."

2. Key, Dr. Ben Witt, New York, N. Y. (Invited Guest)—"Allergic-Phenomena in Opthalmology."

3. Bailey, Dr. C. W., Rocky Mount—"Modern Surgery in Diphtheria, with Conclusions from Six Thousand Eleven Cases."

4. McCall, Dr. A. C., Asheville—"Sinus Infections with Some Hazards in Operative Treatment."

5. Sloan, Dr. Henry L., Charlotte—"Some General Remarks About Cataract Surgery, with Report of 100 Consecutive Uncomplicated Cataract Operations."

6. Wilkins, Dr. R. B., Raleigh—"Headaches in Relation to Eye, Ear, Nose and Throat."

7. Anderson, Dr. Wm. Banks, Durham—"Syphillis in Eye, Ear, Nose and Throat Practice. A study of two hundred and twenty-five syphilitics presenting themselves at the McPherson Hospital with symptoms referable to eye, ear, nose or throat as initial complaint."

8. Norman, Dr. J., S., Hickory—"Mastoiditis."

9. Speas, Dr. W. P., Winston-Salem—"The Problem of the Cross-Eyed Child, An Appeal to the Family Physician." Lantern Slides. (Before Third General Session, Wednesday, April 19th.)

SECTION ON GYNECOLOGY AND OBSTETRICS

WEDNESDAY, APRIL 19, 2:00 P.M.

(Manteo Room)

Dr. Richard W. Spicer, Winston-Salem, *Chairman*

Mrs. Griffin, *Reporter*

1. Spicer, Dr. Richard W., Winston-Salem (Chairman's Address)—"External Versions."
2. Carter, Dr. Bayard, Durham—"Dysmenorrhea."
3. Lee, Dr. Thomas L., Kinston—"Calcium Metabolism in Pregnancy."
4. Moore, Dr. Oren, Charlotte—"New Treatment for Vaginal Gonorrhea."
5. White, Dr. R. A., Asheville—"Hemorrhage During Early Pregnancy."
6. Sharpe, Dr. Frank L., Greensboro—"Late Toxemia of Pregnancy."
7. Ross, Dr. R. A., Durham—"Incidence of Carcinoma of the Uterus in North Carolina: Its Treatment." (Before Third General Session, Wednesday, April 19th.)

CONJOINT SESSION OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA AND THE STATE BOARD OF HEALTH

WEDNESDAY, APRIL 19, 12:00 M.

(Ball Room)

Miss Seigel, *Reporter*

MEMBERS OF THE NORTH CAROLINA STATE BOARD OF HEALTH

J. T. Burrus, M. D., President, High Point.
Carl V. Reynolds, M.D., Vice-President, Asheville.
G. G. Dixon, M.D., Ayden.
L. B. Evans, M.D., Windsor.
S. D. Craig, M.D., Winston-Salem.
H. Lee Large, M.D., Rocky Mount.
J. N. Johnson, D.D.S., Goldsboro.
H. G. Baity, Sc.D., Chapel Hill.
J. A. Goode, Ph.G., Asheville.

EXECUTIVE STAFF

James M. Parrott, M.D., Secretary and State Health Officer.

C. A. Shore, M.D., (deceased) Director Division of Laboratories.

G. M. Cooper, M.D., Director Division of Preventive Medicine.

John H. Hamilton, M.D., Director Division County Health Activities, Epidemiology, and Bureau of Vital Statistics.

Warren H. Booker, C.E., Director Division of Sanitary Engineering.

E. A. Branch, D.D.S., Director Division of Oral Hygiene.

ORDER OF BUSINESS

Dr. J. T. Burrus, President State Board of Health, presiding.

Annual Report of Secretary and State Health Officer, Dr. J. M. Parrott, Kinston and Raleigh.

Other business.

ALUMNI DINNERS

TUESDAY, APRIL 18, 12:30 P. M.

Jefferson Medical College. Ball Room (Exhibit by Drs. Roy C. Tatum and Verne S. Caviness).

University of Pennsylvania. New Dining Room.

Tulane University. Manteo Room.

TUESDAY, APRIL 18, 6:30 P. M.

Medical School of the University of North Carolina. Ball Room.

Medical School of Wake Forest. New Dining Room.

North Carolina Medical College. Manteo Room.

WEDNESDAY, APRIL 19

Dinner for Fellows of the American College of Physicians. Wednesday, April 19, 12:30 p. m. (New Dining Room). The Secretary General, Dr. Wm. Gerry Morgan, Washington, D. C., and Executive Secretary, Mr. E. R. Loveland, Philadelphia, will be present.

Dr. Delia Dixon-Carroll will give a luncheon for the ex-residents of the Philadelphia General Hospital at her home, Nordel Hill, Wednesday at 1 p. m.

TRANSACTIONS

OF THE

EIGHTIETH ANNUAL MEETING

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

RALEIGH, APRIL 17, 18, 19, 1933

SESSIONS OF THE HOUSE OF DELEGATES

MONDAY EVENING, APRIL 17, 1933

The first session of the House of Delegates of the Medical Society of the State of North Carolina convened in the New Dining Room of the Sir Walter Hotel, Raleigh, North Carolina, at 8:10 o'clock, Dr. John B. Wright, Raleigh, President of the Society, presiding.

President Wright: I will ask the House of Delegates to come to order and will ask the Secretary to call the roll.

Secretary McBrayer: Mr. President, if I may be allowed, I should like to present a resolution at this time.

"Whereas the Banking Holiday has so upset the collection and transmission of funds for more than a month, therefore, be it

"Resolved:

"1. That each County Medical Society be entitled to the same number of delegates as last year, and the same number are hereby seated in and for the House of Delegates for this meeting.

"2. That the Fellows of this Society who were in good standing in 1932, shall be entitled to attend the sessions of this Society for this meeting, and shall be entitled to vote when otherwise qualified during this meeting.

"And Be It Further Resolved,

"3. that the attention of the Fellows of this Society and particularly the Secretaries of each County Society is hereby directed to Chapter XII, Article 1 and 2 of the By-Laws, which provide that those County Societies and all Fellows who do not have their State Society dues for the current year in the hands of the Secretary-Treasurer, on or before March 1st, are suspended and are not entitled to any of the rights and privileges of Fellows of this Society.

"The time to pay dues is January of each year, or the December preceding. The time to elect officers for the ensuing year is December. The Medical Society year is the calendar year."

SECRETARY MCBRAYER: I move the adoption of these resolutions, Mr. President.

. . . The motion was duly seconded. . .

PRESIDENT WRIGHT: The resolution has been offered and the motion to adopt it seconded. The matter is now open for discussion. (Call for the question) If there is no discussion, all those in favor of the resolution let it be known by saying, "Aye," opposed, "No." The resolution is adopted. We will now have the roll call.

ROLL CALL

County	*Delegate*
Alamance-Caswell	Geo. L. Carrington
Anson	C. I. Allen
Ashe	
Avery	
Beaufort	DeWitt Kluttz
Bertie	L. B. Evans
Bladen	
Brunswick	
Buncombe	C. H. Cocke, Paul Ringer, W. R. Griffin, S. L. Whitehead, M. L. Stevens
Burke	
Cabarrus	C. W. McPherson
Caldwell	R. W. Petrie
Carteret	Ben F. Royal
Catawba	
Chatham	
Cherokee	
Chowan-Perquimans	
Cleveland	B. N. Matthews
Columbus	
Craven	
Cumberland	R. L. Pittman
Currituck	
Davidson	W. Bryce Hunt
Davie	
Duplin	
Durham-Orange	W. C. Davison, W. B. McCutcheon, R. L. Felts
Edgecombe-Nash	L. W. Kornegay
Forsyth	J. K. Pepper
Franklin	
Gaston	
Gates	T. L. Carter
Granville	
Greene	J. H. Harper
Guilford	H. B. Hiatt
Halifax	B. M. Nicholson
Harnett	Wm. P. Holt
Haywood	F. M. Davis
Henderson	

Hertford.....
Hoke.....S. M. Bittinger
Hyde.....
Iredell-Alexander.....M. R. Adams
Jackson.....A. A. Nichols
Johnston.....
Jones.....
Lee.....
Lenoir.....M. L. Carr
Lincoln.....W. F. Elliott
McDowell.....B. L. Ashworth
Macon-Clay.....
Madison.....
Martin.....J. S. Rhodes
Mecklenberg.....Reid Patterson, R. W. McKay, T. P. White, John Q. Myers
Mitchell-Watauga.....
Montgomery.....
Moore.....R. G. Rosser
New Hanover.....J. T. Hoggard
Northampton.....M. H. Sewell
Onslow.....W. I. Turlington
Pamlico.....J. J. Purdy
Pasquotank-Camden-Dare.....C. B. Williams
Pender.....W. I. Taylor
Person.....B. E. Love
Pitt.....G. G. Dixon
Polk.....Wm. Earle Grady
Randolph.....
Richmond.....T. B. Henry
Robeson.....J. F. Nash
Rockingham.....P. C. Carter
Rowan.....Irving E. Shafer
Rutherford.....W. C. Bostic, Jr.
Sampson.....J. Street Brewer
Scotland.....M. B. Wilkes
Stanley.....
Stokes.....J. L. Hanes
Surry.....R. E. Smith
Swain.....
Transylvania.....J. B. Wilkerson
Union.....A. F. Mahoney
Vance.....H. A. Newell
Wake.....J. W. McGee, R. B. Wilkins, C. C. Carpenter, Verne S. Caviness
Warren.....C. H. Peete
Washington-Tyrell.....
Wayne.....Donnell B. Cobb
Wilkes.....
Wilson.....G. W. Mitchell
Yadkin.....N. W. Mackie
Yancey.....

Secretary McBrayer: I should like to make a very pleasant announcement at this time: Durham-Orange County has seventy-six members in good standing. There are only two other physicians in the county

and one of them tendered dues but was refused. So they have all the men they want except one in the county, which is pretty good for a county of that size.

Buncombe County is carrying seventy men with ten more to come.

Forsyth has sixty-six and brought in some more today, and Wake has eighty-eight, so Wake County has the largest number of members paid up at this time of any county in the state.

Dr. G. H. Macon: How about Warren? They are one hundred per cent.

Secretary McBrayer: Yes, Warren is one hundred per cent. They just don't have quite so many as Wake, but they are mighty fine quality. (Laughter.)

The roll is called, Mr. President, and there is a quorum present.

President Wright: The Secretary declares that the roll has been called and that there is a quorum present.

THE PRESIDENT'S MESSAGE

Dr. John B. Wright, *President*

I haven't many recommendations to make to you, gentlemen.

As you know, Dr. McBrayer has taken me around to practically all of your county societies and I have met you and talked to you before. But in opening this session of the House of Delegates I first want to express to you my sincere thanks for the honor conferred upon me in selecting me as your presiding officer.

May each one of us be guided in our deliberations this evening by a desire to counsel together for the good of the public and our profession.

The House of Delegates is the administrative body of our Medical Society. We should bear this in mind in all of our deliberations. We must have teamwork and unity in purpose to do any constructive work for our great profession. A house divided against itself will fall. If there ever was a time when our great profession needed to be united, it is now.

During the past year I have visited all ten of our District Societies and about 80 per cent of our County Societies. These trips over the State have been of great value to me personally. The personal contact with the physicians and surgeons of the various sections of our State has been elevating and inspiring to me during the year. By these contacts I have been enabled to get a broader conception of the magnitude of the work of our Society and I have been impressed with the grave situation that organized medicine is rapidly entering and of the urgent need for a cohesive form of teamwork. There are so many extraneous influences that are encroaching on medicine that it will demand the cooperation of our entire profession to successfully combat these outside attacks. If I were to suggest that our profession had a fault, it would be that we are too individualistic; but, in the membership of our County, District, and State

Societies, we must have teamwork. We cannot succeed as an organization without it.

Every County Society should be well organized. This is the foundation stone upon which medicine must be builded. The county organizations cannot be well organized without some effort on the part of some member. Were all the County Societies well organized with regular meetings, good programs and every doctor in the county interested to the extent of doing all he could to make each meeting a success and work not for his personal gain, but for the good of his society, then we could get almost anything in North Carolina the medical profession desired. This can never be accomplished without a unified profession. Some of our county and district meetings are poorly attended and are not functioning as they should. One of the main causes for this condition is the fact that the members are too individualistic. They are not good teamworkers. To a great extent the success of a county society depends upon its secretary and president. Especially would I suggest that every county secretary be a good organizer with the ability to keep every physician in his county an active worker in his society.

The financial distress now upon us is forcing each and every one to count the cost and cut all unnecessary expenditures in order to be able to meet the necessities of life. This condition prompted a few of our County Societies to pass resolutions requesting the House of Delegates to reduce the dues to the State Society from $5 to $3. This would be unwise in my opinion. I recommend to this body that the dues be kept at $5 for several valid reasons. First, the 1932 financial statement revealed the fact that the amount collected from dues was $7,305. The expenses were $9,168.22, making a deficit of $1,862.22. Had the dues been only $3, our deficit would have been $4,786.00. We would be bankrupt in a very short time running with such deficits. This is a legislative year with an extra cost and quite an increase in the number of men unable to pay their dues. We who can, must meet this condition for the good of our Society. We cannot reduce expenses, for the Society is run as economically as is in keeping with sound business.

There is one item of expense that I desire particularly to call to your attention—Four months Honorarium for L. B. McBrayer, $200, only $50 per month. The time, interest, hard work and thought given by Dr. McBrayer to this Society is far more than I ever anticipated before my duties as President brought me in direct touch with the great work being done for our profession by Dr. McBrayer. He knows no barriers when called to serve the medical profession. His fidelity for and loyalty to the medical profession of North Carolina has been an inspiration to me, stimulating me to be less selfish and more willing to serve this Society in the future than I have been in the past. Each and everyone of us put "first things first" as we value them, and so does our Secretary. He puts our Society's demands first, even before his personal interests, and we

should at least pay him living expenses and I recommend to this House of Delegates that this be done.

The numerous protests from all over our State against the present administration of our Workmen's Compensation law should be thoroughly investigated by this body and some concerted effort to correct any injustices in its present administration should be one of the duties of this body.

The achievements of medicine in the past thirty years are gratifying to all of us. The future depends upon the way medicine at present meets the problems thrust upon us. We may be sure of one undeniable fact, and that is the searchlight of criticism and investigation is turned directly on us, and every step taken by medicine is thoroughly examined and not always by our friends.

We never shoot higher than we aim. Do we want the standard requirements to enter the practice of medicine lowered? Even our most severe critics would join with us in answering "No"! The standard requirements to enter the practice of medicine of at least two years training in a Grade A literary college, four years medical study, at least fifteen months interneship in a Grade A hospital and a good character places medicine on a pedestal, qualifying the doctors for leadership, not only as healers and scientific research workers, but as statesmen, not in the way of flattery, but based upon the basic principle of the sound logic of preparation being essential for success. The State could well improve on its past record were it to use more liberally the medical profession and less frequently shrewd political manipulators in positions of trust.

In closing may I ask that each one ask himself, "What have I brought to this meeting? What honest constructive effort have I given to the many weighty problems that should be solved by my profession? Have I not allowed the social features of this meeting to occupy the major portion of my interest? What has been foremost in my thoughts and preparations for this meeting?"

Every doctor attending our State Society meeting is, as it were, on dress parade. Every step, every utterance, even the manner of his carriage is open for public scrutiny. Our actions in our homes is private and is to be criticised only by our own conscience and our Creator, but not so at a medical meeting. Medicine must serve society and its deliberations of necessity should be of vital interest to society; therefore, *all* of our actions and deliberations and conduct while in attendance at our meetings are justly open for the public's inspection.

With these few suggestions may we proceed with our deliberations with a steadfast purpose of an honest endeavor to serve society in a constructive and efficient manner?

Secretary McBrayer: Mr. President, I would move you, sir, that a committee of three be appointed to make such recommendations in regard to the President's message to the House of Delegates which we

have just heard and his address before the General Session in the morning as they may deem wise.

. . . It was voted . . .

President Wright: The next on the program is the selection of a Nominating Committee. I will be glad if the delegates from each of the districts would get together very quickly and quietly and select their representative on the Nominating Committee. Each councillor district is entitled to one member of the Nominating Committee.

. . . The meeting recessed while each of the various districts got together to select its member on the Nominating Committee. . .

President Wright: Gentlemen, let's be seated and be quiet. The Secretary will read out the Nominating Committee.

Secretary McBrayer: First District, C. B. Williams; Second, G. G. Dixon; Third, J. T. Hoggard; Fourth, L. W. Kornegay; Fifth, R. L. Pittman; Sixth, W. B. McCutcheon; Seventh, W. C. Bostic, Jr.; Eighth, J. K. Pepper; Ninth, W. B. Hunt; Tenth, Paul H. Ringer.

You ten men might meet in this corner after this meeting adjourns, and decide where and when you want to meet.

President Wright: Gentlemen, the next on the program is certainly a treat and we feel very much honored in having with us Dr. Olin West, of Chicago, who is Secretary-Manager of the American Medical Association. We will now hear from Dr. West. (Applause.)

Dr. Olin West: Mr. President, and Members of the House of Delegates: I sincerely appreciate your most courteous and kindly greeting.

I wish, first of all, to bring you greetings from the Headquarters organization of the American Medical Association and to assure you that that organization from top to bottom is interested in this State Society and that the official personnel of the Association in Chicago is anxious to be of any service that it possibly can in promoting the art and science of medicine and the cause of medical organization in your state.

I am not going to impose on you very long because you will have to put up with me for awhile tomorrow. There is so much to talk about that if I had time I would hardly know where to start except for the fact that your presiding officer has given me somewhat of a tune.

I agree with him to the very last degree that there has never been a time in the history of this country when the need for compact, efficient medical organization has been as great as it is at this moment.

There has been a veritable siege laid to medicine, participated in by influences of many kinds, and the future of medicine will depend in my humble opinion largely upon the manner in which the problems that now confront it, many of which are manufactured by those outside of the profession, are met by the medical profession.

I was greatly delighted when my friend, Dr. McBrayer, wrote me some time ago and told me that he and the President and perhaps some of the members of the Council of this Society were making it their

business to visit every county medical society that it was possible for them to get to. I want to say, gentlemen, while I think of it, that while the Secretary is perhaps the most important cog in a medical organization the best secretary in the world cannot do the job by himself. It is my opinion that one of the most important arms of medical organization is that which we have in the council of the state medical association, and there is a tremendous work that needs to be done and that can only be done perhaps by the members of the councils of our state medical associations.

As I see the matter from my vantage point, the greatest need that confronts the medical organization in the United States today is that the county medical society shall be revivified where it needs revivification —and many of them do. And even the most efficient of them still needs strengthening because it is my belief, my firm conviction, that many of the problems that now confront us will be solved only on the basis of intelligent action by the county medical society supported at the proper time and in the proper manner by the state medical association.

I agree with your presiding officer that every member of a medical organization who is interested in medicine for its own sake, and who is sincerely concerned that the professional aspects of medical practice shall be preserved and that medicine shall have the opportunity to render the greatest possible service in the interest of mankind must do his part towards having an efficient, compact, interested organization—and that can only be had through the sacrifice of individualities and through the process of all pulling together to a common end.

I don't know how the depression has affected the profession in North Carolina except that I gather from the resolutions which were adopted here as the very first order of business that the doctors in North Carolina, just like doctors everywhere else, are having a pretty hard time.

I was glad indeed to see you adopt the resolutions that were presented here by Dr. McBrayer.

The American Medical Association through its Board of Trustees has taken a somewhat similar action in that it has made it possible for those fellows of the Association who have indicated their inability to pay their fellowship dues immediately to be retained in the fellowship of the Association, merely upon their promise to pay their dues within a reasonable time. That promise is not in the shape of a promissory note but consists simply of a statement that, "I will pay my dues within a reasonable time."

That promise was made necessary by the fact that under the Postal Laws subscriptions cannot be continued—subscriptions to publications—after a subscriber has been in arrears for a year, but we secured the ruling that if our subscribers and fellows would promise to pay within a reasonable time their subscriptions could be continued.

The membership of the American Medical Association which as you know, of course, is the membership of its constituent state medical associations, has held up in a very remarkable way. Whereas a year ago we had something more than ninety-eight thousand members we now have something more than ninety-seven thousand members. The members of the American Medical Association as such are not required to pay any dues whatever. They make no contribution of any sort to the support of the Association except as they may feel disposed to subscribe to some of its publications. But, unfortunately, some of the most important publications of the American Medical Association are published at a loss year after year. This condition is continued because the House of Delegates and the Board of Trustees of the Association feel that it is making a distinct contribution towards the promotion of scientific medicine by continuing the publication of periodicals like the *Quarterly Cumulative Index* and some of the special journals which have come to be recognized as perhaps the leaders in their individual fields.

I don't know how the depression has affected you, Dr. McBrayer, as an officer of the Association, but over at our place it has had a rather peculiar effect in that it has greatly increased the scope and the immensity of the demands that are being made on our offices. You would hardly believe it, I am afraid, if I were to tell you what a tremendous increase there has been in the correspondence in the American Medical Association offices, and I am sure you wouldn't believe it if I were to undertake to tell you what all of this correspondence is about. Some of it is about things that neither you nor I nor anybody else ever heard of before. Some of it is about things that perhaps none of us will ever hear of again.

I am somewhat impressed that it may be because a great many of our doctors are having plenty of time on their hands.

Now, if the doctors have as much time on their hands as I think they have from the signs that come my way, in view of the fact that medicine is confronted undoubtedly with the most important problems that have ever faced it, I sincerely hope that the doctors are going to do a lot of thinking, a lot of concerted thinking, and that when the time for action comes it will be a unified action that will represent the best sentiment and the best thought of the entire medical profession of this country, and that that action will be of such a nature as to preserve medicine, the institution of medicine, in order that it may carry on its beneficent service for mankind everywhere in a manner that will enable that service to accomplish the most good.

Mr. President and gentlemen, I thank you for your very kind attention. (Applause.)

President Wright: Dr. West, we thank you. The next item on the program is the report of our Secretary.

ANNUAL REPORT OF THE SECRETARY-TREASURER

To the House of Delegates of the Medical Society of the State of North Carolina:

We have endeavored to carry out the instructions of this Society, the instructions of the Executive Committee, and the President, and do such things as good business and professional usages would suggest.

The Executive Committee as a whole and through smaller committees has done much constructive work during the year, and in addition to the concrete things accomplished, much of the work done is having and will continue to have a far-reaching effect on our profession and our relations with society. It is not only exceedingly wise but necessary to have our Society so organized that it may take official cognizance of things arising in our state and nation and where and when action by our Society would be helpful to the people, any department or undertaking of our government, or to our profession, that it may get in action promptly and efficiently. The Executive Committee fills this need, can meet promptly at any time when need or opportunity is noted, can get in action in thirty minutes by using the wires, as was illustrated by the conference of Dr. Strosnider's Committee with the Governor the next morning after the passage by Congress of the appropriation for relief. And following through with various and many efforts to get some small part of a just remuneration for medical service rendered to those who are furnished everything else in the world from this relief fund.

The minutes of the Executive Committee will go more into detail about the various things they have had under consideration during the year. I must, however, bring to your attention one other matter. At a meeting of the Committee on Medical Activities from 8 p. m. to 12:30 a. m. in the Carolina Hotel, Raleigh, it was decided that it was expedient for some members of the Committee to meet with every County Medical Society in the state. It was also agreed that the President, Dr. Wright, Dr. Parrott, and Dr. McBrayer should do this. They accepted the assignment. We went by twos as is mentioned in the Bible, by threes and singly. And in connection with these visits and much and many other things done, I must say that Dr. Wright, our President, has done yeoman service. It took a man with a strong heart, a strong physique, and an energy and enthusiasm unbounding, coupled with a great love for his and our profession, to enable him to give during his term as President, the time, labor and constructive and intelligent thought that makes his year's work difficult to follow, more difficult yet to attain and certainly never heretofore reached by another. He could see opportunity for service to his profession and his people and he ran to meet it and embraced it.

It has been interesting and delightful to see the mind of the President-elect, trained as it is, even to the nth degree in scientific thinking and analysis, brought to play upon the problems of our profession. He attended every meeting of the Executive Committee save one when he

was ill in Watts Hospital, and every other meeting where his presence was needed and there were a great many of these, as well as many County and District Medical Society meetings. He is beyond any doubt extraordinarily well prepared to take up the reins when President Wright hands them over to him. All of which proves again the wisdom of providing for a President-elect, in our official family.

There are too many members of the Executive Committee to speak of them individually, but they have each and all been faithful and ready at all times to contribute the time and thought necessary to function. I wish to say, however, that it is my conception that the Councillor should consider himself the head of the profession in his District and should be so considered by the profession. He should feel a responsibility for the functioning of all the County Societies in his District, and give particular attention to the medium sized and smaller ones. With our good roads it isn't so difficult to get to and from every County in a District. In addition to his own visits he could easily arrange to send a couple of Doctors to put on a good program two to four times a year.

In 1931 we had an interesting reaction from one small County Society. A letter said that they did not expect to pay any more dues to the State Society nor to the American Medical Association until the annual membership dues were lowered. The irony of the matter is two-fold, (1) they would not be allowed to pay fellowship dues to the American Medical Association unless they first paid dues to the State Society and were otherwise in good standing; (2), that not one of them had paid any dues to the State Medical Society in the past ten years, save one year when the Councillor of that District was particularly active.

The 1933 General Assembly is still with us, so that it would perhaps be improper to comment in detail. One gentleman told me that it was quite apparent that this General Assembly had greater respect for and appreciation of our profession than heretofore. We have been well represented by our Legislative Committee. The Chairman, Dr. Benj. J. Lawrence, as is necessary for a chairman, and because of his residence in Raleigh, has borne the brunt of the work of both the general and the private, and better work I have not seen done by any Legislative Committee, than has been done by Dr. Lawrence.

When the transactions went to press, we had 1559 members in good standing. This is fewer than any year since 1921, which year the number was 1491. Since the transactions went to press 38 have paid their 1932 dues, making a total of 1597; of this number 147 are Honorary Fellows now living and are not subject to State Society dues, which leaves 1450 Fellows who paid dues, or a total income for the year of $7,250.00. It is well to keep in mind that this is the total income of the Society and figures above this amount are simply necessary because of banking and bookkeeping.

Fire Insurance

A letter from Mr. T. Leland Lyne, Charlotte, State Agent, The United Mutual Fire Insurance Company of Boston, advises me that his Company has written three million dollars of Fire Insurance for about one-fifth of our membership, at a total saving in fire insurance premiums to that one-fith of ten thousand dollars. In another year the total fire insurance in force with this Company for members of our Society should be six million dollars with an annual saving to those using this insurance of $20,000.00, and when all the members use this company for their fire insurance, the estimated annual saving is $50,000.00. How do these figures compare with the $7,250.00 you pay annually as dues? There have not been a great many fire losses, but I understand such losses were handled satisfactorily.

Automobile Insurance

I haven't the total amount saved to our members, but I know it to be from 35% to 50% of the premium charged, and the total savings depends upon how many use it. And we must not forget that the old line companies increased their rate about 80% more than a year ago. So far as I have information, the service rendered by the State Farm Mutual Auto Insurance Company of Bloomington, Ill., Mr. M. M. Stewart, State Agent, Raleigh, is eminently satisfactory, and both your President and your Secretary have had personal experience with this Company through their State Agent this year.

Charges for Electric Current to Activate X-Ray Machines

Your Secretary has acted as a committee of one in handling this matter. The monthly charges run as high as $15.00 flat rate, while the current actually consumed in many instances was not more than three kilowat hours, which would amount to 30c at 10c per K.W. hour. We have succeeded in getting a reduction of 50% on the flat rate charge. In order to get this you must make your application direct to the Corporation Commission, Raleigh. It also applies to any hospital.

Gasoline Charges

It was found impracticable for the State Society to accept offers made by the Standard and other distributing companies. However, each individual Doctor can secure a commercial rate, giving him 2c off the filling station price; this should be handled through the District Sales Agency. In addition your courtesy card should allow you to purchase from any filling station anywhere belonging to the company with which you have contract. All of this would be on a monthly charge account basis. Your secretary and a few Doctors in each of two cities have this arrangement now. In addition, if you care to have a tank put on your premises, you can buy gas put in at 3c per gallon less than filling station prices.

The office work this year has been much heavier than any previous year, because there were so many things that it seemed necessary to communicate to the membership and the handling of such things as the reduction of charges for current for X-Ray machines, the work of the Medical Activities Committee and other Committees, has required much office work, to say nothing of the study and thought incident thereto. We have endeavored to economize in a good many instances by sending information to the Secretary of the County Medical Society, in a few counties we have had information that such letters and information had not been brought to the attention of the County Society. It may be possible that such apparent lapse was due to the fact that the Society had not met, certainly it was the duty of the Secretary to see that it did meet. The matter to which I have particular reference was information in regard to securing from County Relief Fund pay toward expenses of Doctors for treating those receiving U. S. Relief, in amount $1.00 per visit and 6c per mile each way as travel expense.

Appended hereto is a financial statement and minutes of Executive Committee meetings.

Respectfully submitted,

L. B. McBrayer,
Secretary-Treasurer.

April 17, 1933.

FINANCIAL STATEMENT

April 16th, 1932-April 15th, 1933

RECEIPTS

Balance on checking account April 16, 1932	$ 2699.29
Dues collected	5560.00
Transferred from certificates of deposit	3000.00
Interest on certificates of deposit	135.82
Compiling list of Doctors	12.00
Copy 1932 transactions	5.00
Total Receipts	$11412.11

ANALYSIS OF EXPENDITURES

Expenses Winston meeting	$ 31.66
Expenses Ex. Com. and Councillors	921.59
Federal tax	2.50
Freight and express	5.55
Flowers deceased Fellows	55.00
Legislative Committee	163.25
Medical Activities Committee	95.09
Office supplies	45.63
Postage	277.52
Preparing copy, printing and mailing transactions	2651.85
Printing and stationery	99.01
President's jewel	13.00
Reporting	584.58

Secretary's Honorarium	600.00	
Stenographic and clerical help	1101.88	
Telephone and telegraph	85.53	
Travel expense secretary	565.81	
Travel expense secretary and president	459.39	
Total Disbursements		$7713.21
Actual Cash Balance checking accounts		$3698.90

Actual checking account	$ 932.99		
Checks outstanding	3.22		
Page Trust Company balance		$ 936.21	
Actual checking account	$2765.91		
Checks outstanding	222.14		
Citizens Bank balance		$2988.05	
Balance on hand April 15th, 1933:			
Actual checking accounts			$3698.90
Certificate of Deposit Page Trust			2000.00
Total balance on hand			$5698.90

"This is to certify that the Medical Society of the State of North Carolina has on deposit with the Citizens Bank & Trust Co., Southern Pines, N. C., $2,988.05, part of which is subject to clearing of a few checks.

"April 15, 1933. EDNA SHAW, *Teller.*"

Dr. L. B. McBrayer, Sec.-Treas,
Medical Society of the State of North Carolina,
Southern Pines, N. C.

Dear Dr. McBrayer:

In response to your request, we hereby certify that the balance on deposit with us to the credit of the Medical Society of the State of North Carolina is $2,936.21.

Of this amount, $936.21 is deposited on the checking account, and $2,000.00 is deposited on interest as evidenced by our Certificate of Deposit No. 1686 bearing interest at 4% from January 16, 1933.

Very truly yours,

D. I. MCKEITHEN,
Secretary-Treasurer.

The Page Trust Company continues on the banking holiday, and these funds are not available and we will probably not be able to realize 100 cents on the dollar. The only funds available for the expenses of the Society for the next twelve months is $2,988.05 in the Citizens Bank & Trust Company of Southern Pines.

The banking holiday which continues with many banks in our state has been a serious handicap to county societies and to the State Society. Many societies had collected annual dues, but had not transmitted them and found them frozen in these banks. One secretary sent his personal check to cover, another wired cash to cover. Checks to the amount of $670.00 were re-deposited, some of them twice, and the banks still on holiday. This of course appears in our financial statement and in our banking transaction. We have on hand checks amounting to $345.00, mostly on the North Carolina Bank & Trust Company. The county societies will be expected to make these good, but they are hoping though it may be a forlorn hope, that the banks will open up and make these good.

For 1932 we had	1559 members	For 1933 we have	988 members
Honorary Fellows	166	Honorary Fellows	175
	1393 to pay dues		823 to pay dues

MINUTES EXECUTIVE COMMITTEE
MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Morehead City, N. C., June 30th, 1932

Meeting of the Executive Committee of the Medical Society of the State of North Carolina was called to order by the President, Dr. John B. Wright, at Atlantic Beach Hotel, Morehead City, 9:35 a. m., June 30, 1932.

The following were present:

Dr. John B. Wright, President, Raleigh
Dr. J. R. McCracken, 1st Vice-President, Waynesville
Dr. L. B. McBrayer, Secretary-Treasurer, Southern Pines

Councillors

Dr. C. B. Williams, First District, Elizabeth City
Dr. K. B. Pace, Second District, Greenville
Dr. C. F. Strosnider, Fourth District, Goldsboro
Dr. W. M. Coppridge, Sixth District, Durham
Dr. Thos. C. Redfern, Eighth District, Winston-Salem
Dr. M. R. Adams, Ninth District, Statesville
Dr. Jos. B. Greene, Tenth District, Asheville
Dr. Benj. J. Lawrence, Chairman Committee on Legislation, Raleigh.
Dr. J. M. Parrott, President State Board of Health, Raleigh.

Dr. C. F. Strosnider, Chairman, made a complete report of the work of his committee. Motion by Dr. McBrayer that this report be accepted and committee be instructed to proceed with the work which was unanimously carried.

Dr. McBrayer, in the absence of Dr. A. B. Holmes, Chairman Committee on Hospitalization of Veterans, presented the latest developments in the work of this committee and the committee from the American Medical Association.

Report from Dr. A. G. Brenizer's Committee on the Cost of Medical Care was asked for by the President. Word had been received that Dr. Brenizer was ill and would not be present.

Following the agenda the Secretary called attention to the parts of Dr. Judd's address, Minutes of last Session House of Delegates, pages 36 to 38, inclusive. Two important points were in regard to the medical profession and medical organization entering into all the activities of our present day civilization and that the profession in addition to the scientific part of medicine should take up the organization work and the relation of the medical profession to all other agencies including state and local government and take an active part therein. The other point was that the community as a whole should be obligated to provide physician's care for those who were unable to pay for it rather than for the physicians to carry the whole load. It was pointed out that no other group in the state of North Carolina is expected to carry such load by itself. It was thought that it is very necessary to bring this to the attention of the medical profession and to the public.

In this connection President Wright stated among other important things that there is no other organization that has so much of its legitimate rights taken away from it as the medical profession.

Dr. Pace suggested that a statement be gotten up showing just what the medical profession would ask of the legislature and this was agreed to Dr. Lawrence, as Chairman of the Committee on Legislation, requested the Secretary to communicate with every County Society in regard to this matter and furnish them the information. Dr. Lawrence also requested that each councillor send him immediately after the primary July 2nd, the names of his respective Senator and legislators from his District.

Dr. Strosnider made a motion that the President, Secretary, Dr. Lawrence and Dr. Parrott compose a committee and be given authority to make out such statement as mentioned above and continue through the year handling such matters as might seem wise for it to take up. The motion was unanimously carried.

The instructions of the House of Delegates to employ an attorney and other matters in the report of Dr. Lawrence, Chairman Committee on Legislation in the House of Delegates was referred to the above mentioned Committee.

Page 40 to 44.

The matter of amended law requiring marriage certificates was presented to the House of Delegates by Mrs. W. B. Waddill, President of the Social Service Conference and referred to the Executive Committee

and after due consideration on motion of Dr. Strosnider the Executive Committee disapproved the measure.

The American Medical Association requested that a committee be appointed from the Medical Society of the State of North Carolina to cooperate with a committee from the State American Legion, State Hospital Association and Veterans Administration in regard to the treatment of veterans, which committee would cooperate with and represent a like national committee. On motion Dr. Holmes' committee was constituted as this committee.

Dr. Parrott stated that he would have to leave shortly and that he had some matters he would like to bring before the Executive Committee and he was cordially invited so to do at this time. This had mostly to do with plans and policies of the State Board of Health and copy of the prepared document was requested so that we might be able to refer to it in this minutes in an intelligible way, but up to this time Dr. Parrott has not been able to furnish same although he has agreed to do so. The two important things presented were the requirements that a physician should have before he could be employed as a Health Officer, to-wit, an M.D. degree, followed by either training or experience, and after some discussion this was approved on motion of Dr. Greene, seconded by Dr. Lawrence.

The other matter was in regard to immunizations and the relation of the Medical Society thereto and the relation of the Health Department thereto and the inter-relation of both in this connection. This matter was approved.

The resolution of the Buncombe County Medical Society in regard to preventing the sale of the Barbital group except on prescription of the physician was approved and referred to the Committee on Legislation.

In regard to the matter of page 39 (third paragraph from the bottom) being report of Dr. Lawrence, Chairman Committee on Legislation, to the House of Delegates. Dr. Lawrence requested that the following be added to the duties of the secretary in scuring aid "and such other legislation of importance to the profession as may be presented or may be deemed wise to present at the coming session of the legislature."

Dr. McBrayer stated that the United Mutual Fire Insurance Company who were writing the fire insurance approved by the Executive Committee last year had sold to physicians over two million dollars worth of fire insurance at a saving of about $8,000 to those taking it.

Representatives of the following insurance companies appeared before the Executive Committee:

Liability insurance against mal practice—Aetna Life Insurance Company, Mr. Riddick.

Life Insurance—Metropolitan Life Insurance Company, Mr. J. J. Lynn.

Health & Accident policy—National Casualty Company of Detroit, Mr. Snyder.

Life Insurance—Union Cooperative Insurance Company, announcement made by Dr. McBrayer.

On motion the committee of the Buncombe County Medical Society to study insurance matters with Dr. John W. Huston, Chairman, is to be requested to make a study of the various insurances offered and the insurance companies making such offer and report to the secretary and through him to the Executive Committee.

The matter of excluding doctors who had not paid their dues from attending the sessions of the annual meeting was discussed and thought inadvisable.

Dr. C. B. Williams called attention to the fact that no one should be allowed to vote in the House of Delegates except duly constituted delegates which was agreed to and which had the hearty approval of the President, Dr. Wright.

Dr. J. W. Davis of Statesville thought it would be very desirable that every Judge in the State of North Carolina should have a copy of a book entitled "Courts and Doctors," and requested the Executive Committee to present to every Judge in the state a copy. Dr. Davis' request was given very careful and thoughtful consideration. It seemed to be the consensus of opinion that we might give offense to some Judge if we carried out this suggestion. It was suggested that the councillors and other physicians interested could talk to the Judges of their acquaintance and get them interested in the book. On motion of Dr. Pace it was left to the discretion of the councillors and individual physicians in regard to bringing it to the attention of the Judges.

The secretary announced scholarships to the Pediatric Seminar at Saluda, July 25th to August 6th.

Dr. Strosnider advised that copies of the report of his committee would be sent to the members of the Executive Committee as soon as it had been presented to the Equalization Board and they had taken action.

On motion of Dr. Strosnider, a wire of sympathy and condolence was sent to Dr. I. H. Manning, President-elect, who was ill at Watts Hospital.

The President, Dr. Wright, recommended the amendment of the medical practice act so that the Board of Medical Examiners could rescind a license and change the matter of appeal to the Superior Court, to appeal to the Executive Committee of the State Medical Society.

On motion it was ordered that we request the legislature to allow County Medical Societies to elect doctors to serve on the County Boards of Health instead of the present plan.

No further business appearing on motion adjourned.

Respectfully submitted,

L. B. McBrayer,
Secretary-Treasurer.

MINUTES EXECUTIVE COMMITTEE
MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

RALEIGH, N. C., JANUARY 10, 1933

Meeting of the Executive Committee of the Medical Society of the State of North Carolina was called to order by the President, Dr. John B. Wright, at the Sir Walter Hotel, Raleigh, 9:15 a.m., January 10, 1933.

The following were present:

Dr. John B. Wright, President, Raleigh
Dr. I. H. Manning, President-elect, Chapel Hill
Dr. J. R. McCracken, First Vice-President, Waynesville
Dr. W. G. Suiter, Second Vice-President, Weldon
Dr. L. B. McBrayer, Secretary-Treasurer, Southern Pines

COUNCILLORS

Dr. C. B. Williams, Elizabeth City, First District
Dr. K. B. Pace, Greenville, Second District
Dr. A. B. Holmes, Fairmont, Fifth District
Dr. W. M. Coppridge, Durham, Sixth District
Dr. Addison G. Brenizer, Charlotte, Seventh District
Dr. Thos. C. Redfern, Winston-Salem, Eighth District
Dr. M. R. Adams, Statesville, Ninth District
Dr. Joseph B. Greene, Asheville, Tenth District
Dr. Benj. J. Lawrence, Chairman Committee on Legislation, Raleigh
Dr. Verne S. Caviness, Chairman Committee on Arrangements, Raleigh
Dr. J. M. Parrott, State Health Officer, Raleigh
Dr. T. W. M. Long of Roanoke Rapids and Dr. J. Marshall Lee of Newton Grove, members of the General Assembly
Dr. H. A. Newell of Henderson, representing the N. C. Hospital Association

Dr. McBrayer read the minutes of the last meeting. The President, Dr. Wright, declared the minutes approved.

Dr. Parrott asked to be allowed to discuss the last paragraph of the minutes in regard to motion that we request the legislature to allow County Medical Societies to elect doctors to serve on the County Boards of Health instead of the present plan, and advised that the State Board of Health had endorsed a bill which was now being drafted, that the local Boards of Health shall consist of two Doctors, one Dentist and two folks and the Supt. of Public Instruction ex officio member and that the local Board of Health shall be an organization to itself. The dentist to be appointed by the County Medical Society, two doctors by County Medical Society and two folks by the County Commissioners and in the

event that neither group functions the appointive power should rest with the State Board of Health.

Dr. Wright stated that the matter as outlined by Dr. Parrott was before the meeting and Dr. Holmes made a motion that we endorse it, seconded by Dr. McCracken. Motion carried.

Report of Medical Activities Committee read by Dr. McBrayer at the request of the Chairman of the Committee, Dr. Strosnider, who could not be present. After some discussion of the report, Dr. Brenizer made a motion that the report be accepted.

REPORT OF THE MEDICAL ACTIVITIES COMMITTEE

Dr. C. F. Strosnider, *Chairman*

Following the meeting of the Executive Committee at Morehead City, this Committee first endeavored to follow through on the matter of repeater school children as per your instructions. The Committee and sub-Committees appointed by the Chairman have held eight different meetings.

They secured the approval of the plan by the State Department of Education, State Department of Welfare, State Department of Health and Equalization Board. The Equalization Board made an appropriation of $30,000.00 for the examination and treatment of repeater school children, as provided in the following resolution:

"Whereas, it has come to the attention of the State Board of Equalization that numerous counties have made provision in their supplementary budgets for funds for carrying on certain health activitise in the schools under the direction of the State Board of Health, this being done despite the fact that the State Board of Equalization made no allotment of funds for this purpose, and

"Whereas, it seems possible at this time for the State Board of Equalization to make an allotment for this item in compliance with Section 6, Subsection c, of the School Law of 1931, now, therefore,

"Be it Resolved, That the State Board of Equalization will make an allotment of funds to the various counties to be classified into three groups as follows:

Group I. All counties having a school population of 5,000 or less, $200.
Group II. All counties having a school population of 5,000 to 10,000, $300.
Group III. All counties having a school population of 10,000 or more, $400.

"It is understood that the allotment will be made upon certification from the State Board of Health to the effect that a health program, as approved by the State Board of Education, has been completed in the county under the supervision of the State Board of Health and costing not less than the amount provided in the above schedule.

It was later found that funds from other sources were not available and that no County Medical Society felt financially able to examine and

treat 35% to 50% of the school children in a county for the small allotment, $200 or $300 or $400, but several of them were willing to take three schools more or less. It was thought that it would be better to do this as a demonstration to show what could be accomplished and so Dr. Parrott was requested to approve same. He replied he could not do so without specific instruction from the Equalization Board—which inquiry was made by Dr. Parrott and answered by the Board as per following correspondence:

December 14, 1932.

Mr. Leroy Martin, Secretary
State Board of Equalization,
Raleigh, N. C.

Dear Mr. Martin:

I have been requested to ascertain from the Equalization Board whether funds allocated for a county health program to a county may be used entirely and exclusively in one, two or three schools, rather than for the county as a whole. I desire the action of Equalization Board on this matter. And, too, I want the permission of the Equalization Board to have the local Medical Activities Committee, or the County Board of Education to designate the schools, in the event this specific authority is granted. The idea is advanced that two or three counties be designated for this limited work, in order to demonstrate the practicability and value of the service. My understanding is that parties in Buncombe and Durham counties, and maybe two or three other counties want to use the funds for a limited number of schools.

It will be impossible for me to meet with the Equalization Board on Friday, and I am, therefore, asking you to ascertain from the Equalization Board:

(a) May I approve the use of all the funds allocated to a county for only one, two, or three schools in the county, as a demonstration to ascertain the value of this work and not as a policy?

(b) And if so, may the funds be used in two or three schools in Buncombe, Durham, Wake, and Pender conuties?

(c) And if so, shall the local Medical Activities Committee or the County Board of Education (or what other agency) designate the schools in the chosen counties?

I thank you now for presenting this communication and requesting the action of the Board.

Sincerely yours,

(Signed) James M. Parrott,
Secretary and State Health Officer.

p/e

December 19, 1932

Dr. James M. Parrott, Secretary
State Board of Health
Raleigh, N. C.

Dear Mr. Parrott:

The State Board of Equalization at its meeting here last Friday, gave consideration to the matters you presented with reference to the use of the funds allotted by this Board took the following action:

"Upon motion of ....., it is the opinion of this Board that the funds allocated to any county for a health program should be used in such manner as to make possible the benefits derived therefrom accessible to certain types of children throughout the entire county rather than confined to one, two or three schools in the county."

Referring to the questions you asked the Board to answer, this answers the question you listed as (a) in the negative, which will make unnecessary any answers to both (b) and (c).

Very truly yours,

(Signed) LeRoy Martin.

While the aforementioned negotiations and conversations were being had, Dr. Strosnider instructed the Secretary to prepare an examination and treatment card and have a few thousand printed ready for the beginning of this work.

He also instructed the Secretary to have mimeographed the plan of work, all of which was done after first having the approval of the Chairmain. Copies of the mimeographed plan of work were mailed to each member of the Executive Committee and to every County Medical Society, also copies of examination and treatment card.

Very recently Prof. Gentry, Superintendent of Schools of Harnett County, undertook to get this appropriation for the purpose of examining all the school children in Harnett County for tuberculosis and the treatment of all those needing it, the immediate incentive being the erection of a preventorium in Harnett County with provision for maintenance by Mrs. Percy Rockefeller of Overhills in Harnett and Cumberland Counties. He first made application to the State Health Officer, Dr. J. M. Parrott, and the application was forwarded to the chairman of this committee.

Dr. McBrayer, acting solely for the North Carolina Tuberculosis Association, requested Dr. Parrott to approve this expenditure for Harnett. Dr. Parrott did so approve as per a letter which follows:

Dr. L. B. McBrayer, Secretary-Treasurer, January 6, 1933
Southern Pines, N. C.

Dear Doctor McBrayer:

In reply to yours of January 3rd, I beg to advise that I will approve the use of the money set aside by the Equalization Board for a county for the examination and treatment of tuberculous school children when

carried out under the direction of or when sponsored by the State Sanatorium. The certificate for completion of service would have to be furnished by the State Sanatorium through its proper officer.

I have discussed the matter with Doctor Allen and he also approves of this.

I am forwarding a copy of this letter to Prof. Gentry, Superintendent of Schools of Harnett County, and to Doctor P. P. McCain, Superintendent of the State Sanatorium. Of course, I will be pleased to cooperate with them.

It is to be understood that the money will be available alike, and in proper proportion, to all the schools in the county.

Sincerely yours,

(Signed) JAMES M. PARROTT,

p/e *Secretary and State Health Officer.*

Your committee has learned unofficially that this $30,000 appropriation or the pro rata part of it, is being authorized in some counties for dental work conducted by the State Board of Health.

So it would seem that instead of a complete program of examination and treatment of all repeater school children as first planned, which had no takers, the appropriation is now being used for certain specific pieces or units of work, such as just mentioned, without reference to repeaters. While your committee regrets its inability to get a single county society to put on the complete program, because of the smallness of appropriation made for this purpose and hopes that in the future there may be sufficient funds to enable a large number of county medical societies to do this, it is of the opinion that the expenditure of this fund for specific units of work, when done on a county-wide basis, comes well within the scope of the resolution adopted by the Equalization Board in making the appropriation, and while not as valuable by any manner of means, it is much better for the children and the state, than not to use it at all.

The committee has, on what it considers good authority, information that the Equalization Board thinks well of the proposed work for repeater school children, as outlined by this committee, and thinks because it is an economic and humane measure, much larger appropriations will be made the coming year. The appropriation of $30,000.00 will expire, used or unused, at the end of this fiscal year, next July 1st.

The other important matter taken under consideration was cooperation in the matter of the U. S. Relief Fund. A conference was held with Governor Gardner and the services of the Medical Society of the State of North Carolina was tendered. The Governor immediately accepted the tender and requested that we contact the Medical Society in every County of the State, and secure estimates of the needs in each County and such other information as might be helpful. This was done, and every County Medical Society in the State, and where there was no regular organization some member of the profession in such county furnished the

information, so that your Committee was able to furnish the Governor and Mr. Morrison an estimate of the needs in dollars in each and every county in the State. Sixty-eight responded during the first week, twenty more during the second week, ten the third week, and two the fourth week. The amount estimated was only a little below that secured by the State Department of Welfare, through County Welfare Officers. Of course, the thirty-two counties could and should have responded during the first week, as did the sixty-eight, but it was a splendid accomplishment, and your committee congratulates our profession. One question asked was "Can the medical profession continue to carry the increased charity load caused by the present financial conditions?" The answer from each and every county was, "NO."

Following which your Committee formulated a plan of caring for all children whose parents were unable to care for them properly, with particular reference to physical condition and proper food. This we considered most efficient, most economical, and most constructive. This was added to the plan for caring for repeaters, all of which is attached hereto for our records. Mr. Morrison was sympathetic toward the plan, but was unable to secure the approval of the Committee at Washington.

Your Committee then undertook to secure for the physicians travel expense and other actual expense incurred in *giving* his medical service to those who were indigent or so nearly as to become the recipients of the U. S. Relief Fund. Again Mr. Fred Morrison was sympathetic but was not able to secure the approval of the Washington Committee and Bulletin No. 1 was issued from Mr. Morrison's office which states specifically that no funds can be used to pay hospital bills or to pay physicians though medicines are allowable. So far as we are informed this rule remains as first promulgated.

However, some counties are paying the travel expense of the Doctors who do this work and a few are paying a small fee for each patient treated. One county is paying 5c per mile as travel allowance and a fee of $1.00 for each patient treated. Another county is paying mileage and a fee. Another county is paying mileage and charging it up as taxi fare. Your Committee would recommend that the Secretary be instructed to furnish this information to the profession by means of a mimeographed letter.

Visits to County Medical Societies

Dr. Strosnider delivered addresses before the Superintendents and Principals of schools at Chapel Hill and the Institute of Public Welfare at Chapel Hill. All were enthusiastic and many requests were received from Superintendents of schools and Welfare Officers for the plan of work.

The President, Dr. Wright, the State Health Officer, Dr. Parrott, and the Secretary, Dr. McBrayer, according to instruction of the Committee, visited every County Society in the state and the profession in every

county where the county society is moribund or worse, save two, to wit, Ashe and Alleghany, and these were requested to meet us at Boone and North Wilkesboro, but failed to put in an appearance. We usually went by two's, sometimes by three's, and a few times singly.

We discussed with them the things mentioned in this report, the treatment of Veterans, the treatment of indigents, certain legislation, etc., and all the time and everywhere the importance and value and necessity of the county, state and national organizations being kept intact and functioning one hundred per cent. We asked the County Societies to meet with us and in that way, beginning at 8:30 a. m. with the first meeting and closing at ten or eleven p. m. with the last meeting, and by careful planning of the itinerary we were able to make five meetings in one day. We usually worked Friday and Saturday of each week, reaching home Saturday night or early Sunday morning.

Those in attendance on these meetings, quite frequently one hundred per cent of the Doctors in the county, seemed deeply interested in the things we presented and in the work of their Society and the State Society and showed us every courtesy and consideration. In almost every county we left a committee of three, whose duty it would be to cooperate with our committee and any other committee appointed by this Executive Committee.

A large number of these societies could not remember that an officer of the State Society had ever visited them, not even a councillor. These visitations were, of course, somewhat burdensome, but they were most enjoyable and we believe very helpful to those with whom we came in contact, which we estimate to be 90% of our membership, and a goodly number of Doctors who were not members.

The work of your committee in helping secure information as to amount needed in our state for relief, and to bring to the attention of those in authority the needs for work to be done by the medical profession and the submission of plans therefor and its endeavor to secure reimbursements for at least the expenditures of money on the part of physicians in carrying out their part of this work, again proves the value of that part of our organization which we call our Executive Committee, and its creation and continuance of this committee.

We can foresee that this committee may and probably will need to function on many different subjects during the session of the General Assembly. We therefore recommend that this committee be continued.

We desire to express appreciation for the attendance on every meeting of our State Health Officer, Dr. J. M. Parrott, and the suggestions and helpfulness he has brought to us.

Respectfully submitted,

C. F. Strosnider, M.D., *Chairman*
Thos. C. Redfern, M.D.
W. C. Banner, M.D.
Addison G. Brenizer, M.D.
Benj. J. Lawrence, M.D.
L. B. McBrayer, M.D.

Report of Committee on the Treatment of Veterans was read by Dr. Holmes, Chairman.

Dr. Holmes stated that the Committee had been active all along with our congressmen, with the A. M. A., with the American Legion and with General Hines, who is in charge of the Veterans' Administration, and that the A. M. A. as reported recently had almost gotten around to our plan of treatment of veterans embodied in the resolutions. Dr. Holmes stated the committee requested that copy of the resolutions be sent to every member of congress and that each member of the Executive Committee write the senators and representatives enclosing a copy of the resolutions, and the Hospital Association, represented by Dr. Newell of Henderson, be requested to follow through with the hospitals in the same general plan and that copy of the resolution be sent to every County Medical Society with the request that they transmit same to their senators and representatives with the request that they secure an amendment of the law governing the treatment of veterans in compliance with said resolutions.

The following resolutions were approved by the Committee and unanimously adopted by the Executive Committee:

The Committee on the Treatment of Veterans request the adoption of the following:

"Whereas, there are twice as many empty Hospital beds in the United States in general hospitals as could possibly be needed under any hospitalization plan for Veterans of all wars in which the United States or any part of it has been engaged, and

"Whereas, there is much waste of money in transporting Veterans to and from hospitals, over long distances, and transporting Veterans long distances for examination, in many instances the travel expense being decidedly more than the entire expense of treatment at home or in a near by hospital, and

"Whereas, the Veterans, with acute diseases such as pneumonia, and emergencies such as ruptured appendix, are either dead or recovered before they can secure admission to a Veterans' Hospital, and must needs be treated by local physicians, either in their own homes or in a near by hospital, and if unable to pay, they must necessarily become objects of charity, while their buddies are being treated and cared for at government expense in government hospitals, and, on that account are discriminated against, therefore,

"Be It Resolved, that Congress be and is hereby requested, and our representatives in Congress are respectfully requested to so amend the law governing the hospitalization and medical and surgical treatment of Veterans and the medical examination of Veterans, so that all acute cases and all emergency cases, and such others as may seem wise, may and shall be treated and cared for in their own home community, in their own home hospital by their own home physicians, and the Veterans Adminis-

tration or other Bureau of the Government having authority, be instructed to pay for the said care and treatment for those eligible to hospitalization."

The above report was accepted with thanks to the committee.

Report by Dr. Brenizer on the Cost of Medical Care. Dr. Brenizer will prepare a report for this committee in the form of a resume, which material will be available to any member of the Medical Society. Report accepted.

Report of Committee on Legislation by Dr. Benj. J. Lawrence outlining matters which were to be brought before the General Assembly:

Chairman Committee on Legislation discussed question of growing lack of appreciation among the public, of the efforts of our profession and presented short outline of work of Committee to date, as follows:

1. Recommendation of President:

(a) Amend Practice Act.
(b) Law looking toward automobile driver license carrying insurance, etc.
(c) Chairman of Committee on Legislation wrote Attorney General of the State of Massachusetts securing copy of their Act.

2. Recommendation of Secretary of State Society:

(a) Doctors bill in preferred risk.
(b) Abolition of or materially lowering of $25.00 privilege tax of physicians.
(c) Some method of protecting physicians fees in automobile accident cases where people are not responsible.
(d) Insurance question for Doctors in general.

3. Recommendation of Committee:

(a) Amend Practice Act—prevent appeal from action State Board of Medical Examiners in rescinding license to practice medicine for cause.
The President wants it; the Board of Examiners want it.
(b) Amend Compensation Act—President wants it; the profession wants it.
(c) Automobile driver license—President-elect wants it.
(d) Tax on Hospital to be handled by Doctor Highsmith.
(e) Physician to Industrial Commission should be a regular physician in good standing, recommended by the President or the Executive Committee of the State Society and approved by the Governor and not the Industrial Commission.
(f) Ever increasing amount of charity work to be done. Public attitude wrong, and we should bestir ourselves about same.

Dr. Lawrence requested that the Executive Committee determine two or three matters: first, authorize the President and Secretary to appoint such members as may be wise to look after the matter outlined in Dr. Brenizer's report, second, determine whether or not as a State Society we want to attempt to abolish the Industrial Commission or amend it. On motion the entire matter was left with the Committee on Legislation.

Dr. Manning presented the matter of the present standing of Doctors bills for professional services in the closing of estates, this now being Class 6, and also brought to the attention of those present the difficulty of collecting Doctors and hospital bills in accident cases. Mentioned com-

pulsory insurance but stated this, of course, could not be done until a law was passed for individual driver's license. Dr. Coppridge suggested that the law be revised to read "expense incurred in last illness."

Dr. McBrayer made a motion that this be referred to the Committee on Legislation with the request to have laws passed in accordance therewith. Motion carried.

Motion suggested by Dr. Wright as follows: That a Doctor be put on the Industrial Commission, that the injured have the liberty to select his Doctor and that industry be required, big and small, to come in so the weak will not have to carry the burden.

Dr. Holmes made a motion that this matter be left with the Legislative Committee with power to act, which was seconded by Dr. Coppridge. Motion carried.

Report of Dr. Verne S. Caviness, Chairman, Committee on Arrangements for the next meeting which included report of all matters thus far arranged. Report approved with thanks.

Dr. Parrott brought to the attention of the meeting the fact that the veterinarians of the state would like to cooperate with the medical profession and that the chair be authorized to ask the Secretary to address an official communication to this group stating that we would be glad to cooperate with them in any way and perhaps ask one of them to address us. Dr. Williams made this motion, seconded by Dr. McBrayer. Motion carried.

Report of Committee from Buncombe County Medical Society on Insurance, Dr. Huston, Chairman, to which the matters presented to the meeting in session at Morehead City by various insurance representatives were referred, in Dr. Huston's absence was read by Dr. Brenizer at the request of Dr. McBrayer, which follows:

Report of the Insurance Committee of the Buncombe County Medical Society

Your Committee has studied the propositions made by the Metropolitan Life Insurance Company, and by the Union Co-operative Insurance Association.

The insurance offered by the Metropolitan is at a rate somewhat less than that at which the individual could buy it, but the proposal is hedged about, requiring so high a percentage of the members to subscribe, and remain subscribers, as to make the proposal impractical.

That offered by the Union Co-operative is at so cheap a rate that it could not be regarded as a sound buy, but only as a sporting proposition. Those presenting early death claims would probably be few, but would exceed the income of the company, and in our opinion would probably render the company financially unsound.

The members of this Committee, therefore, report both propositions, in their opinion, impractical.

Dr. Thomas Huffines,
Dr. G. W. Murphy,
Dr. J. W. Huston,
Committee.

Mr. John C. Calhoun, representing the Metropolitan Life Insurance Company, presented a life insurance proposition.

At the request of the President, the case of Dr. C. B. Wilkinson, who has a law suit pending, was presented by his lawyers. No official action was taken but informally it was the opinion that Dr. Wilkinson was without blame and that he would receive the individual support of every one present.

Dr. McBrayer presented the following resolution:

"Whereas, the economic conditions have increasingly gone from bad to worse, thereby increasing many fold the needs and demands for free medical service, and

"Whereas, the Doctors of the state have carried this enlarged charity as long as they can in many sections, and

"Whereas, relief from illness is the highest type of human relief and all other needs are cared for and supplies and services paid for,

"Therefore Be It Resolved, that it is the opinion of the Executive Committee of the Medical Society of the State of North Carolina that sufficient funds should be allocated at once in every county in this state to aid the Doctors in a large measure to carry this greatly increased burden, of caring for the indigent sick.

"Resolved 2. That a copy of this preamble and resolution be sent to the State Director of Relief."

This resolution was seconded by Dr. Holmes and unanimously carried.

The matter of charges for electric current in the use of x-ray machines was brought to the attention of the Executive Committee by Dr. McBrayer.

Dr. McBrayer stated that the charges were exorbitant, being in many instances as high as $15.00 per month, flat rate, that he had had the matter up with the Corporation Commission for many months and that the Virginia Electric & Power Company serving a few towns along the northeastern Virginia-Carolina border had been required to make a flat rate of $1.00 per month and a charge of 7c per kilowatt hour for current used after the first thirteen kilowatts. Dr. McBrayer estimated there were only two x-ray machines in this territory. Nothing had been done by the Corporation Commission with the two companies serving the remainder of the state. The last letter from the Corporation Commission suggested that each Doctor operating an x-ray machine take it up directly with the Corporation Commission and that Dr. Bullock of Wilmington had done

this and they had reduced the charges 50%. Dr. McBrayer was requested to continue his efforts.

Dr. Manning asked whether the Medical Society of the State of North Carolina had a regularly appointed lawyer and wanted to know if this wouldn't be a good plan for the Medical Society. He stated that the Pharmaceutical Society has a lawyer employed. Dr. Brenizer suggested the choosing of a reasonably competent lawyer. Dr. Lawrence advised that the House of Delegates in their last session gave this authority to the Secretary.

Dr. McBrayer outlined the program as generally carried out at the annual meetings and asked for any suggestions. None being offered it was agreed the next program be built as heretofore.

Dr. Williams brought up the matter of the election of members to the Board of Medical Examiners. Dr. Manning made the suggestion that the Board be increased to ten and that the Society elect a member from each councillor District. This seemed to meet with general approval, though no action was taken.

The matter of a uniform narcotic law was suggested by Dr. McBrayer and he made a motion that this be referred to the Committee on Legislation with power. Motion carried.

Dr. McBrayer read a resolution of the New Jersey Medical Society in regard to the necessity of having Doctors on Hospital Board as follows:

November 11, 1932

To Chairman of Board of Directors of Hospitals in New Jersey:

At the Annual Meeting of the Medical Society of New Jersey, that organization, having under consideration a subject which has recently aroused a good deal of interest, i.e., the relationship of physicians to hospital management, adopted the following resolutions, and instructed its Secretary to send a copy thereof to the Board of Directors of each and every hospital in this state:

"Resolved, (1) That inasmuch as the business management of hospitals is intimately associated with the medical and surgical care of the patients (for which hospitals exist), the Medical Staff of a hospital has a right to share with the Board of Trustees the management of all matters distinctly medical and, to this end, should be represented on boards or committees or by effective mutual conferences: and

"Resolved, (2) That approval is hereby given to the stand taken by the Essex County Medical Society and its resolutions in support of the action of the Medical Staff of the Hospital and Home for Crippled Children; and we furthermore feel that all members of this State Society should support these principles in their personal associations with hospitals."

The resolutions adopted by the Essex County Medical Society, and the principles embodied therein, are as follows:

"Hospitals exist principally for the medical and surgical care of the sick, which care must be in charge of competent physicians.

"Boards of Trustees of hospitals are made up of public spirited men and women who have a sincere desire to serve the community, and are banded together in order that they may make possible the service that physicians give to patients.

"Medical Staffs are made up of physicians whose relative positions on the Staffs vary according as years of experience and service, and their ability, may have qualified them.

"Physicians, by reason of their trained and experienced knowledge of disease and its treatment, and because of their daily contact with hospitals and patients, are better qualified to understand and to solve the professional problems of hospitals; and because of their intimate knowledge of each other and of each other's work, are the only ones able to correctly judge the relative abilities of physicians.

"Boards of Trustees and Medical Staffs each have special functions, some of which are distinct. There are, however, certain functions that should be performed jointly by Trustees, who have the executive authority, and by the Staff, who have the expert knowledge. All problems connected with the essential purpose of a hospital, that is with the service which physicians render their patients should be solved jointly by Trustees and Staff; also problems connected with changes in the Medical Staff of a hospital are better understood by the physicians and should be solved by cooperation of Trustees and Staff.

"We believe, moreover, that the Senior Staff of every hospital, because of the many years of daily contact with the hospital and because of the vast amount of service that they have given to patients of the hospital, have a heartfelt interest in the welfare of that hospital. The hospital becomes an integral part of the spiritual life of each. We believe that in shaping the administration of hospitals, physicians should have a large share, not because the physicians wish it, but because hospitals need their advice.

"We, therefore, believe that:

(1) Medical Staffs should have adequate representation on Board of Trustees.
(2) We believe that there should be no change in the medical policy of a hospital without proper consultation with the Staff.
(3) We believe that no physician who has efficiently and faithfully and loyally served on a hospital staff should be removed or demoted without proper consultation with representative members of the Staff.
(4) We believe that the medical profession should present a united front in support of the foregoing general principles, which are in the interest of the hospitals and the patients whom they serve.

"We trust that you will accept this message in the spirit of cooperation and the desire to avoid or prevent trouble.

Very truly yours,
(Signed) J. B. Morrison, M.D.,
Recording Secretary, Medical Society of N. J."

Dr. Wright presented the advisability of a State Society for the control of Cancer and read a letter from the American Society for the Control of Cancer and suggested that a committee be appointed to handle this matter in our state and to cooperate with the American Society for the Control of Cancer. Dr. Coppridge stated that some of the pathologists had been approached at the meeting of the American College of Surgeons and suggested that we do approve the formation of an organization in the state, with the suggestion that a committee of pathologists be formed and that they put over a program with the help of whatever clinical men they might want to call on.

Dr. Manning moved that a committee of three be appointed, composed of one pathologist, one surgeon and one general practitioner, seconded by Dr. Williams. Motion carried.

Dr. Wright introduced a pamphlet, "A Clearing House for Health Programs," send out from Wilmington and asked the advice of the Executive Committee in regard thereto. Dr. Manning made the suggestion that the President secure further information in regard thereto from our Councillor in the Third District, Dr. J. T. Hoggard at Wilmington, who was unavoidably absent.

No further business appearing, Dr. Wright thanked the Executive Committee assembled for their patience and attentiveness. On motion meeting adjourned, having been in continuous session for six hours.

Respectfully submitted,

L. B. McBrayer,
Secretary-Treasurer.

Secretary McBrayer: Gentlemen, I do not offer an apology for the length of these minutes of the Executive Committee meetings. You must be aware that the work done could not have been reported on in a fewer number of words to good advantage, and a report to this body of the doings of the Executive Committee is required by our Constitution and By-Laws. That is our reason for presenting these reports.

President Wright: The proper thing, I suppose, to do is to refer this to the Finance Committee. Do I hear a motion to that effect?

Dr. J. T. Hoggard (Wilmington): I move, sir, that it be referred to the Finance Committee.

. . . The motion was duly seconded . . .

Prsident Wright: It has been moved and seconded that the Secretary's report be referred to the Finance Committee. Is there discussion?

. . . The motion was put to a vote and carried . . .

President Wright: You gentlemen, of course, realize that this is a very long report, but it is really quite condensed. It allows you to get just a little insight into what is being done by those that represent you during the year in this Society, and we feel that it is more imperative that

that work shall be carried on now and in the future than has been the case ever before.

The next item on the program for this meeting is the report of the Committee on Legislation, which will be presented by the chairman of that committee, Dr. B. J. Lawrence.

REPORT OF THE COMMITTEE ON LEGISLATION

DR. B. J. LAWRENCE, *Chairman*

Mr. President and Secretary, Members of the House of Delegates of the North Carolina State Medical Society:

Your Committee on Legislation and Public Policy wishes to submit the following resume of its activities since we met at Winston-Salem one year ago. We met with our Executive Committee at Morehead City June 29-30, 1932. At that meeting Committee reports were heard; matters looking toward better insurance rates, public relief, government care of veterans, their hospitalization and the cost thereof were discussed. A complete account of this will come to you in the Secretary's report.

Your Chairman has been in touch with our Senators and members of Congress regarding legislation looking toward this last item, by letter, by telegram and in person at various times. We have met with Dr. Strosnider's Committee repeatedly and with Dr. Holmes' Committee once or twice. These gentlemen will give you a report of what took place on those occasions.

Soon after the primary last June the Chairman of this Committee asked the Councillors to send him the names of Senators and Representatives from each District in order to have an acquaintance and knowledge that would afford a working harmony with them on their arrival in Raleigh.

At a meeting of our Executive Committee held in Raleigh January 10, 1933, I asked for instruction regarding the relation of our profession to the Industrial Commission with particular reference to certain complaints coming from members of the profession from various parts of the state. After a full discussion of the matter action regarding the same was left to the discretion of your Committee. In view of the marked interest our distinguished President had taken in this matter it seemed wise and proper that leadership on this question be left to him and that course was followed. At this same meeting the request for legislation amending the Medical Practice Act coming from the North Carolina State Board of Medical Examiners was approved and various other matters of interest to the profession at large were decided upon—such as tax legislation, automobile driver's license, the wisdom of lowering the $25.00 privilege tax—placing Physicians' bills in second place. Making Physicians' bills during last illness a preferred claim. And a recommendation that the Physician to the Industrial Commission should be a regularly licensed

Physician, in good standing and a member of the North Carolina State Medical Society, recommended by the North Carolina State Medical Society or its Executive Committee and approved by the Governor.

Please keep in mind that thus far we have reported matters already directed and approved by our Executive Committee. Since the January 10th meeting the Chairman and other members of this Committee have acted under the order of or with the direct approval of the President, the President-elect, and the Secretary-treasurer.

We were fortunate enough to get a bill drawn, introduced, passed and ratified amending the Practice Act. We were happy to have been privileged to assist our Secretary of the State Board of Health in securing an increase in the appropriation for State Health work. Such appropriation, while still too small for the best work, yet is much better than that which was recommended by some would-be "tax savers."

This session of the legislature, like its predecessor, has been very long and tedious. It has required a lot of time and energy of the President and our very able Secretary. Few of you realize just what he really means to organized medicine in North Carolina. He has driven many miles to Raleigh and Washington and spent long hours working far into the night looking after the interest of the Doctors of North Carolina. As a matter of public policy I want to take this opportunity to thank Dr. McBrayer personally and officially on behalf of our profession for his able and efficient efforts to safeguard its interest. I am confident that no man in this state knows our profession so well or loves it more profoundly than does our Secretary.

We asked and secured the approval of the Revenue Commissioner and the chairman of the Finance Committee that the same provision regarding Physicians, as now applies to lawyers be written into the Machinery Act regarding the $25.00 privilege tax (SB 58), (HB 120). Provides that if a Physician does not net more than $1,000.00 he need not pay more than $12.50.

Dr. T. W. M. Long, who is a member of this Committee and is the distinguished Senator from Halifax caused to be introduced and passed several measures of great benefit to the profession. He lent his efforts to the support of numerous other measures which fell by the wayside. We are grateful to him and to Dr. Lee of Sampson, our Physician member of the House.

A very real and strenuous effort was made to get legislation enacted into law making Physicians' and hospital bills preferred claims. Various bills were introduced with such relief in view. Most of them were pigeonholed in Committee or were given unfavorable reports. Legislators seemed to look with disfavor upon any measure which would favor Physicians. Measures were introduced in an effort to place Physicians' accounts in second place and to give hospitals preference on funds resulting from damage suits. We were unable to get any of these measures into law.

HB 502 received an unfavorable report as did HB 497—HB 503 got by the Committee but was killed on its second reading. Bill 419, introduced by Messrs. Dunnigan, Frances, Bailey and Griffin of Chowan, created a lively fight. It had the approval and the sponsorship of certain members of the Industrial Commission. It received a favorable Committee report and passed two readings. It was lost on the third reading in the Senate.

Senator Dempsy introduced a bill, Senate Bill 133, placing the Industrial Commission under the Commissioner of Labor, but it was lost in Committee. The bill to abolish the Industrial Commission was introduced by nine Senators, none of whom sponsored it vigorously, and it died in Committee. Senator Corey introduced a bill, Senate Bill 427, amending the Act, a very well drawn bill with many splendid features, but it likewise received an unfavorable report.

HB 326, 213, 215, and 454, all pertaining to Physicians' and hospital accounts, were killed in Committee. Senate Bill 288, placing hospital bills during last illness in second place, passed the Senate and we were able to get the Committee on Health in the House to give it a favorable report, and amended it, adding "Physicians' accounts created during the last illness." It was then tabled on the floor of the House proper.

Your Committee did not have or cause to be introduced any of the above bills relating to the Industrial Commission except HB 1284, permitting an injured employee to select a Physician of his own choosing. It was very evident to those in close touch with the situation here that powerful forces were working for the Commission and that very little if any good could be accomplished at this time. Our profession is divided on the question and so long as this condition exists we can do little constructive work. We considered several measures creating a drivers' license insurance that would take care of hospital and Physicians' bill following automobile accidents by or with irresponsible people.

Our incoming President was much interested in this question and offered many helpful suggestions. The State of Massachusetts has such a law. Pennsylvania has enacted a law giving some relief. However, such a measure would mean an added tax of approximately $30.00 on each car. Every gas and oil company plus the chronic tax reducers and others were opposed to such an act and it was abandoned.

Your Committee wishes to take this opportunity to publicly thank Senator T. W. M. Long of Halifax, one of our own members, Dr. Lee, the Hon. Rufus L. Doughton of Alleghany County, Hon. Claude Allen of Granville County, Hon. Wm. L. Lumpkin of Franklin County, Hon. Sam Gattis of Orange County, Hon. Mr. Hamilton of Carteret, Hon. Billy Sullivan of Buncombe, Hon. Nat Crews of Forsythe, and Walter Murphy of Rowan, and others for their help and support on the floor, of the measures of interest to our profession. We are deeply grateful to them for such courtesy and for their support. At the request of the Secretary and our President on March 13, 1933, the following telegram was sent to the

White House: "Hon. Franklin D. Roosevelt, President of the United States. My dear President: Please permit me to congratulate you upon the firm stand you have taken. Your splendid statesmanship offers great encouragement to our people. The members of my profession in North Carolina are solidly behind you and your great program as a whole and particularly that part of it relating to Veterans' expenditure, so vitally affecting cost of Government." Copies of the above telegram was sent to both Senators and several Congressmen at Washington.

Please permit me now to direct a few remarks to you regarding Public Policy and our relation to the public at large. You will agree, I think, that the large number of bills and resolutions introduced during this session of the legislature directed at a particular Commission, either to abolish it or to amend the Act; is to my mind irrevocable evidence of the wide dissatisfaction with the Act or with its administration. None of those bills were introduced at the request of your Committee, save one. We do not feel that the Commission should be abolished—there are those who differ with us. We do feel that it should be amended. Such seemed impossible or impracticable at this time; for various reasons, one of which is the fact that our profession is still divided.

I wish to call your attention for a few brief moments to the widespread and growing antagonism of the public toward our great profession. There are many causes for this—one perhaps is the talk and strong feeling growing out of the report of the Committee on the Cost of Medical Care. To my mind our profession is facing the most serious crisis in the history of its existence. My fellows, let us not be fooled by fancy on a passing occasion—I want to ask you seriously, "Do you think your profession, my profession, the profession of our fathers, is united today?" I stand here and make bold to say and that without the slightest fear of successful contradiction that most of our difficulties originate in our own ranks—I called this to your attention forcibly one year ago—Most of the things which we try to carry forward for the good of our profession and fail in the attempt can be traced directly in most instances to members of our own group. The disagreement is not widespread—but here and there are Physicians who for selfish reasons or from lack of knowledge of a given question are always ready to oppose the move.

My friends, it is a difficult matter to get legislation enacted in favor of Doctors through a legislature composed of men who know little of our "inner souls" and less of our training. All honor to the lawyers—many of our greatest statesmen have been lawyers. But they do not understand Doctors, their training is so different in every particular. Their ethics, their teaching, their training, their background, their business methods and the very atmosphere around them is different. And most legislatures by a large majority are composed of members of the legal profession. Many of them as fine men as ever drew breath, many are my valued and trusted personal friends. But I am speaking of a principle and not of an individual.

It is as old as the hills, as high as a mountain and deep as the sea. To give you an example: suppose if you please a Senate of fifty members—one Doctor, two bankers, four or six insurance and business men, a minister, a merchant, three manufacturers, a farmer, and thirty-five lawyers—just think of it. That is not their fault, that is our fault. You know and I feel that most laws today are drawn by lawyers—of them—and for them. I am not attacking them—I admire them for it. Self preservation is the first law of nature. A cub three days old in a den when hurt bares its fangs instantly; a bird two days old with eyes that have never seen the light of the noonday sun, points its little head up, and its bill flies open at every rustle of the wind. It is high time we were using methods and measures for the preservation of our profession.

Imagine if you can one's utter astonishment while working for much needed legislation on which most all or all so far as you can ascertain are agreed—the bill having passed one House and two readings in another and ready for the third and final leap—when suddenly an enthusiastic Legislator approaches you, whips out a telegram from an honored member on whom you have every reason to count and whom so far as you know is working shoulder to shoulder with you, in which he says, giving no reason, "please kill bill blank number." Such is a true illustration of what happens often. Now that is supposed to be Democacy and as such I am for it—but when such a form comes to grapple with the best interest of the profession—I wish it could be overcome.

I want to call your attention once again to the damage suit question. And re-emphasize again that most every suit against a physician grows out of a careless or thoughtless remark by a fellow with his guards down.

Finally I would remind you that the strength of our glorious past, present and future is the collective strength of the individual of our ranks. That the success of the whole is the collective success of the individuals making up the whole and manifesting itself in a rapidly changing drama of a world, that is trying to commercialize the entire profession of Medicine and thereby literally subsidize one of the finest of the fine arts.

Members of this House of Delegates and of the North Carolina Medical Society, the lines of battle are forming, yea, they are about to be drawn up now at this very hour. Let us meet the challenge with the courage and conviction that has charaterized the leaders of the past who gave us our glorious heritage on which we stand and from whose vantage point we may go forward with confidence into the light of a new and fairer day.

Respectfully submitted,

BENJ. J. LAWRENCE,
Chairman of Committee on Legislation and Public Policy.

SECRETARY McBRAYER: Mr. President, I move that the report of Dr. Lawrence be approved and the thanks of the House of Delegates be extended to him for his splendid work.

. . . The motion was voted with enthusiasm . . .

PRESIDENT WRIGHT: Next is the report from the Committee on Treatment of Veterans, by Dr. A. B. Holmes.

REPORT OF COMMITTEE ON HOSPITALIZATION AND TREATMENT OF VETERANS

Mr. President, Members of the House of Delegates:

Your Committee on Hospitalization and Treatment of Veterans desires to submit the following report:

While it is true the Committee has accomplished nothing definite in the realm of national affairs, we feel that we have converted the North Carolina Department of the American Legion to the plan—"Every sick and disabled veteran treated in his home or home hospital by a Doctor of his own choosing." We have the unanimous support of a committee from the North Carolina Hospital Association.

The so-called depression has caused the powers that be in Washington to adopt our plan not to build any more government hospitals at the present time. If it be true, gentlemen, that more hospitals are not needed now, and that the local hospitals are adequate to take care of the veterans today, why, in the name of common business economy, should it ever be necessary to return to the wholesale spending of money to build more hospitals and treat all veterans of all wars at the expense of the United States government, in government owned hospitals, when we have adequate hospitals scattered throughout this country and the medical profession is entirely willing to do the work!

We all know that our local hospitals are absolutely essential and now is the time for organized medicine to work to the end that there shall not be return to the original intention of the government to spend a vast sum of money to build 100,000 more hospital beds. We should remember that any proposed plan to be effective must be enacted into law. Organized medicine should contact all legislators in Washington and prove to them that our plan will work and that we are perfectly willing to do the paper work as well as the professional work necessary in treating the veterans of all wars.

Your Committee will do all possible to advance this work. Please don't forget this is a real undertaking and we need the assistance of the entire profession. We are all praying the depression will soon be forgotten, but while conditions continue as they are at the present time, and while the government has declared a holiday in hospital building, is the time to put in our best work. Cooperation is needed and your Committee

trusts that every one will put his shoulder to the wheel. Let us not falter nor hesitate, but strike while the iron is red.

A. B. HOLMES,
Chairman.

PRESIDENT WRIGHT: You have heard this report. Is there a motion to accept it?

DR. CHAS. F. STROSNIDER (Goldsboro): I move that the report be accepted.

. . . It was voted . . .

PRESIDENT WRIGHT: Next is the Committee on Cancer, Dr. C. C. Carpenter, Chairman.

REPORT OF COMMITTEE ON CANCER

In January, 1933, Dr. John B. Wright, President of the State Medical Society, appointed as a Committee on Cancer, Dr. J. L. Adams of Asheville, Dr. Paul F. Whitaker of Kinston, and Dr. C. C. Carpenter of Wake Forest.

The Chairman received from Dr. Wright the proposed Five Year Program for Cancer Control, issued by the American Association for Cancer Control. Copies of this were made and mailed to Drs. Whitaker and Adams. After studying this program, a meeting was called in Raleigh to be attended by members of the State Board of Health and members of the Committee, on March 9, 1933. Dr. Paul F. Whitaker, Dr. M. V. Ziegler and Dr. C. C. Carpenter were present, Dr. Adams being unable to attend. At this meeting the proposed Five Year Program for Cancer Control was discussed and considered.

Those present agreed that the Committee should:

(1) Approach the cancer problem in North Carolina through the Medical Profession, and that its activities should be carried on largely through the Medical Profession.

(2) Determine in some way the prevalence of cancer in North Carolina, and that this can be done better along the plan used by the State Board of Health in their recent venereal disease survey.

(a) To arrange sometime during the summer to have suspected growths examined for physicians free of charge for the survey.

(b) To set aside a specific time in which physicians will be asked to send to the laboratory biopsy specimens from a given number of suspected malignancy cases.

(c) To have statistical analysis, reports and other pertinent information mailed to the physician.

(3) To make an appraisal on the facilities for the diagnosis and treatment of cancer used throughout the State.

(4) To hold within the next few months a meeting where some outstanding man is present to give us a presentation on the subject of cancer.

(5) To have presented at one meeting of each district Medical Society a special program on cancer.

(6) To anticipate the establishment of cancer clinics in certain key localities in the State.

We hope that the physicians individually will cooperate with us as fully as possible in carrying out this program.

Respectfully submitted,

C. C. Carpenter, *Chairman,*
Paul F. Whitaker,
J. L. Adams.

President Wright: You have heard this report. Is there a motion that it be accepted?

Dr. J. Q. Myers (Charlotte): I move its acceptance.

. . . It was voted . . .

President Wright: Next is the report of the Committee on Printing, by Dr. McBrayer.

Secretary McBrayer: Mr. President, the Committee on Printing has functioned during the year. Dr. McCain and Dr. Dickie are the other members of the Committee.

We let the contract for the printing of the Transactions for next year at a little lower rate than for the preceding year, and the printing of the programs was included in the price.

We are very well pleased with our work.

President Wright: You have heard this report.

The next item on our program is reports of Councillors. We will hear from the First District, Dr. C. B. Williams, of Elizabeth City.

Dr. C. B. Williams: On account of the smallness of the counties in my district we do not have meetings, I mean, county medical meetings as a rule. The Pasquotank and Perquimans County Medical Societies hold meetings every month. However, on account of the smallness of the counties and the wide distances between the physicians, the others depend on the district medical society for their meetings.

We have had two very interesting meetings during the year. We have had a good attendance from every county at these district meetings, and we have had very good papers, and there has been a lot of interest in the meetings.

I would say that the First District is well organized and especially interested in organized medicine.

Dr. Williams discussed the conduct of the Industrial Commission in relation to the doctors' fees allowed.

Dr. Williams made the following suggestion: Pasquotank, Camden and Dare are connected as a medical society. I should like to see action taken at the proper time to make Pasquotank and Camden one society and Currituck and Dare another society. That is suggested entirely for geographical reasons and there is no objection to it on the part of these people.

President Wright: We have heard the report from the First District. We will now hear the report from the Second District, Dr. K. B. Pace.

Dr. K. B. Pace (Greenville): Mr. President, Members of the House of Delegates: I represent the Second District which has nine medium-sized and small counties. We realize the fact that we need close organization in medicine now more than ever before, as you have already heard tonight.

Our program is not going to be considered complete in our counties until we have an active medical society in every county that meets at least once a month. In the small counties we are going to have a society even if there are only three or four doctors in the county. We are going to arrange to have one of the doctors invite the others to supper with him every month, in order that we may have a meeting every month. That is the only way we can get anywhere at all with it. We have discovered that we can't get the doctors together unless we feed them. And that is the way to keep them coming.

Anything else that I have to say about the Legislative Committee will come up under New Business.

Everybody is happy. There is no friction whatever in our District. We feel that we have the best District in the whole state. (Applause)

President Wright: Fine!

We will hear from the Third District, Dr. J. T. Hoggard, of Wilmington.

Dr. Hoggard: Mr. President, representing the Third District, I will say that we have a meeting once a month of the New Hanover County Medical Society, and every three months we invite the doctors of the District to meet some place, if not in Wilmington, in some other section of the District.

We are harmonious so far as I know and doing very nicely.

President Wright: Thank you.

Next is the Fourth District, Dr. C. F. Strosnider, of Goldsboro.

REPORT OF COUNCILLOR OF FOURTH DISTRICT, DR. C. F. STROSNIDER

Dr. C. F. Strosnider (Goldsboro): Mr. President and Members of the House of Delegates: I am pleased to report that the affairs of the Fourth District, in so far as I am able to determine, are working harmoniously and the membership thereof is free of discord. We have held four well attended meetings during the past year at which excellent papers were read and discussed.

Most of the component societies meet monthly in the evening when supper is served and a social hour is enjoyed with the two-fold purpose of increasing the interest and attendance, and the best of all, to become better acquainted with one another—understanding is the best antidote for discord.

Each society visited was well attended and the program rendered was of the post-graduate type in that the essayist had done considerable personal research work over a period of time as was evidenced by the failures and successes cited.

Thus organized medicine carries on in the Fourth District in the spirit of the times—giving much in comfort and labor and receiving little save love, gratitude from many, and the knowledge that duty has been well performed.

President Wright: The next report will be from the Fifth District, Dr. A. B. Holmes.

Dr. A. B. Holmes (Fairmont): Mr. President and Members of the House of Delegates: Regardless of what Karl Pace says, or anyone else, I am going to start off by admitting that the Fifth District is the best one in the state.

We have eight counties that have regular monthly meetings; two have meetings four times a year. Our District Society meets twice yearly.

Last week we had the honor of entertaining some of the big "moguls" in the North Carolina Medical Society and I think they had quite a good time.

I am glad to report that harmony prevails in the Fifth District. (Applause)

President Wright: Next is the Sixth District, Dr. W. M. Coppridge.

Dr. W. M. Coppridge (Durham): Mr. Chairman, all the counties except one have been visited during the year.

The main objectives of the Executive Committee have been laid before the various societies. No official business has been handled with the exception of one matter submitted by the Alamance-Caswell Society. This concerned the membership in the State Society of a man residing in that county who does not belong to the local society.

The matter was submitted to the Secretary of the State Society who handled the matter promptly and efficiently and to the satisfaction of all concerned.

I might say that the matter that was brought up by Dr. Williams, the matter of the Industrial Commission, is a subject that has been discussed in every society meeting that I have attended. I don't think I can add anything to what Dr. Williams has said except that there seems to be a general feeling of dissatisfaction about the way in which the Industrial Commission handles its affairs. (Applause)

President Wright: The Seventh District, Dr. Brenizer.

REPORT OF COUNCILLOR OF SEVENTH DISTRICT AND THE CHAIRMAN OF COMMITTEE ON THE COSTS OF MEDICAL CARE

Dr. A. G. Brenizer, Charlotte

As formerly reported one year ago there had been an effort made by the Councillor of the Seventh District to bring about the following conditions in each County Medical Society:

1. Establishment of a secretariat:

(a) To keep up with phone calls.
(b) To assemble and collect back bills.
(c) To collect and bind journals, reprints, papers, and case reports.
(d) To carry on necessary correspondence in receiving journals, data, and literature from the Mecklenburg Medical Library.

The secretary's salary could be paid from additional bills collected and price of services in running the telephone exchange.

The Mecklenburg County Medical Society has offered the use of its library, its librarian, and the combined capacities of its specialists in medicine to all county medical societies in the district.

There have been but three requests for information from the entire district.

The Councillor of the Seventh District considers the plan proposed now as a beginning and working basis for the establishment of a "professional men's credit association" with interrelationship not only between counties in the district but between districts in the state, if not an extension to a state relationship. This is, at least, a move in the direction of the medical profession's solution of the much agitated question of the "costs of medical care." Through such an interrelationship of county medical societies, district medical societies and state medical societies, the class of dead beats and hitch-hikers could be designated.

2. It has, also, been proposed by the Councillor of the Seventh District that clinical meetings be held around the hospital in each county, attended by the members of the district—expenses defrayed on a per capita attendance basis. At these meetings a short time should be given over to the discussion of legislative and financial problems.

These various proposals in this plan lead ultimately to a more intimately friendly, cultural and financial relationship between members of the medical profession and a clearer understanding of how the profession may proceed in solving its own problems of the "costs of medical care" maintaining at the same time its code of professional ethics and placing the medical profession in position to plead for, if not demand its legislative rights. How else may the medical profession gain a knowledge of local conditions and needs and place itself in position to solve its own problems and combat the financial and legislative invasions, now in an aggressive stage.

The medical profession must, at this time, let it be known to the public that it is capable and willing to care for the untreated sick at a reasonable cost and that if the public fail to receive the proper care from the knowledge and skill of the orthodox medical profession, it cannot receive it elsewhere. The medical profession must wake up from its inertia and complacency and no longer stand by when the industrial commissions, insurance companies and politicians are lowering the standards of entrance and application of medical care by the introduction and recognition of irregular practitioners, by the curtailment of practice by the care given those of non-service disability in veterans hospitals and by propaganda broadcast to indicate that the medical profession is receiving inordinate compensation for services.

Since the members of the medical profession still belong to the "white collared class," since they have kept mostly silent with their problems, since some one has said: "There are those who know exactly what's the matter with this country—and others are working," and since most doctors fall into this working class, with appearances kept up, the profession of both medicine and nursing are being made the target of many invasions. That a profession now older than the Christian Church, a profession taking a rational origin through Hippocrates at the time Greek culture, and culture as we know it now, took its origin in a barbaric world, should meet again the barbaric world of cultists and the invasions of socialists and unmedical minded politicians is a resistance to medical progress that all ethical doctors should rise against and make the reasons for their ethics and practices well known to the public. We must have it well understood, the high plain upon which we must do our work.

To the point of being tedious, to the point of overloading you with length of paper, I shall try to convince you of the necessity of activity in financial and legislative matters with a paper before the general session expressing the reaction of the orthodox medical profession to the "Report of the Committee on the Costs of Medical Care." The paper entitled "Diseases, Doctors and Dollars." You must bear with me!

REPORT OF DR. T. C. REDFERN, COUNCILLOR EIGHTH DISTRICT

The Eighth District has had two very successful meetings during the last year, one in High Point and one in Mount Airy.

There has been no friction in this District during the year and everything seems to be harmonious.

(Signed) Thos. C. Redfern,
Councillor.

REPORT OF COUNCILLOR OF NINTH DISTRICT

DR. M. R. ADAMS

A good many county societies in my district do not meet at all, while others meet very infrequently, and a few meet regularly with a fair attendance. The annual district meetings are the most important event of the entire year and are looked forward to with much interest and are growing in enthusiasm and favor year by year. The last annual meeting was held in Morganton on the 25th of last September and a good program was rendered and a number of scientific papers, all of a high order, up to date and progressive, were read and discussed. The annual meetings are usually attended by officers of the State Medical Society which is a stimulus to the members of our district society as well as it encourages attendance. At our last meetings, Dr. John B. Wright, President of the State Medical Society, was present and gave an interesting address. At the dinner meeting talks were made by Dr. John McCampbell, Dr. I. H. Manning, President-elect, and Professor Albert Coats of the Law Department of the University of North Carolina. This meeting gave many members an opportunity to see the State Hospital which is doing such fine work under the direction of Dr. John McCampbell and his associates. The Society was saddened by the tragic death of our District President, Dr. Jacob Sowers of Lexington. Dr. J. R. Terry read a timely and appropriate paper on the life and character of Dr. Sowers. Peace and harmony prevails in the entire District as far as I know.

Mr. President, I want to present an amendment to the By-Laws, as follows: Resolved, that Chap. VII—Councillor Districts—be amended by taking Mitchell and Avery Counties from my district, the Ninth, and placing them in the Tenth District. Mr. President, I am informed that these counties desire this change, as it will be more convenient for them, and the change is approved by the Councillor of the Tenth District, by the Tenth District, and by the officers of this Society.

M. R. ADAMS, M.D.,
Councillor Ninth District.

PRESIDENT WRIGHT: This amendment will lie over until the next session of this House of Delegates, when it will come up for final action.

REPORT OF COUNCILLOR OF TENTH DISTRICT

DR. J. B. GREENE

I am glad to report that all goes well with the Tenth District Medical Society. As interest continues, shown by the attendance, we have kept up the custom of having two meetings a year.

The Spring Meting last year was at Hendersonville, where a very successful session was held. The good people of that city did everything possible to make our stay with them a pleasant one. Our President, Dr.

Wright, was with us and gave an interesting address on "Organized Medicine." In the evening our Secretary, Dr. McBrayer, presented an excellent paper on "Tuberculosis Incidence." The Autumn Meeting was held in Asheville where, in spite of the bad weather, the attendance was good. Dr. Manning, President-elect, presented a scholarly paper on "Hormones, the part they play in General Medicine." His visit to Asheville, made at considerable inconvenience, was greatly appreciated by his many friends in the western section of our state.

Our next meeting will be held in Waynesville on May 17 where a large gathering is anticipated.

I approve the amendment to the By-Laws submitted by Dr. M. R. Adams, Councillor of the Ninth District.

President Wright: The next item on the program is New Business.

Dr. H. B. Hiatt (High Point): Mr. President, Dr. Williams has struck a note here tonight that probably has given a good deal of concern to every man in North Carolina that has come in contact with the Industrial Commission at all, and there is no question that there is an immense amount of dissatisfaction on this score. There is no question in my mind that the medical profession has a tremendous amount to charge up to the Industrial Commission, that the medical profession has been ill-used, but I don't think this is a matter that can be settled immediately.

Dr. Lawrence and his Committee have labored faithfully and have done some wonderful work, but I would move you, sir, that either you or the incoming President appoint a committee of five from this House to collaborate, if necessary, with Dr. Lawrence's committee and/or the committee to confer with the Industrial Commission to effect such changes in the rules as may be possible, to relieve the medical profession of the burden that has been placed upon them by the Industrial Commission.

. . . The motion was duly seconded and voted . . .

President Wright: Is there anything else to come before the meeting? Dr. Manning, you have a committee that you want to announce.

President-elect Manning: It is my pleasure to announce the Committee on the President's Address as follows: Dr. M. L. Stevens, Dr. H. A. Newell, Dr. J. Q. Myers.

Dr. Geo W. Mitchell (Wilson): I have a resolution from the Wilson Medical Society I should like to introduce:

"Whereas, in the year 1930 the State Medical Society raised its dues from three to five dollars per annum, and whereas, since that time there has been a progressive decrease in membership with a corresponding increase of expenditures by the Society, and at the same time there has accumulated a surplus in the Treasury, as evidenced by the reports of 1927 to 1932, inclusive.

Year	*Members*	*Operating Expenses*	*Bank Balance*
1927	1691	$4,853.85	$3,340.34
1928	1738	5,237.96	4,599.57
1929	1669	5,148.12	4,457.77
1930	1694	4,757.91	4,376.79
1931	1600	4,928.42	6,696.70
1932	1559	6,668.22	7,699.29

"Therefore, be it resolved by the Wilson County Medical Society, through its delegate, to recommend to the State Medical Society that the dues be changed to $3.00 per annum, and that the By-Laws of the State Medical Society be amended to this effect, as follows: that Chapter XII, Section I, Line 1, be amended to read an annual assessment of three dollars per capita on the membership of the Society be made, and eliminate that portion of line four, which reads that Executive Committee shall have the power and authority to do, in relation to changing the fees in this section."

Dr. Mitchell: Can it be discussed now?

President Wright: I think it can be discussed, yes, sir.

Dr. Mithell: I just want to state that the Wilson County Medical Society is not bringing this resolution before this House of Delegates in order to complain of its officers, but we feel that during the last three or four years the physicians of North Carolina has been as economical as possible and have been trying to get along without any more expense than has been absolutely necessary.

We notice, too, that since the increasing of the fee from three to five dollars, the membership has continually gone down until, as Dr. McBrayer said just a short time ago, he has only collected dues from something like one thousand members this year.

We believe that it is not helping the Medical Society of North Caroline to continue a fee of five dollars, when it is not bringing in any more revenue than we had when the fee was three dollars.

Furthermore, the expenses in the Secretary's office have increased considerably in the last two years. As you note, in 1931 (which is shown in the 1932 Proceedings) there was an increase of $1700 in expenses over the preceding year, and also in comparison with the year 1929 there was considerable increase in expense, not only in the amount of supplies purchased but also in the clerical and stenographic expense and certain other expenses. For instance, the Councillors' expenses were $986—and we are not kicking on that. We believe that the Councillors ought to be paid. But we do think that the office should be run as economically as possible, and that all supplies, clerical and stenographic work, etc., should be conducted on a more economical basis. When the Society had more members they were spending less money than they are spending at the present time.

I don't want the Society to think that we are trying to raise a rumpus, or anything, because we are just as interested in keeping the Society up as anyone else and you will find if you will investigate—and Dr. McBrayer

I think will bear me out in this—that Wilson County has as active a society, for the number of doctors in the county, as any other society in the state. We have kept up our dues and we have done our part equally as well as any other county, not even excepting Wake, and we feel that in bringing up this matter now, we are trying to help the Society, and not hinder it.

Thank you.

President Wright: I just want to make one word of explanation to Dr. Mitchell.

Dr. Mitchell, the years which you quoted when we had increases in membership and in dues were our prosperous years. Furthermore, these increases occurred after we raised our dues from $2.00 to $3.00. You attribute this decrease in the payment of dues to the increase in the amount of dues that we have to pay. As a matter of fact, the decrease has been due to the conditions that we have been experiencing. As you know, we have had decreases in everything else, financially—

I want to explain that this new Constitution and By-Laws put into operation the machinery of these various committees and these Executive Committee meetings. That increased the expense of running the Society and also increased its efficiency. And all of us who have been on the inside know that it has been run as economically as it can possibly be run. If our services have been no good, why, then, we can cut them out and abolish our committees and dispense with our Executive Committee's work, and go back to where we were twenty-five years ago. But you know as well as I do what the result will be.

We can do away with the expenses of our Legislative Committee, but personally I feel that when these gentlemen give up their time, and leave their practices, and give all they have for organized medicine the least we can do as a Society is to pay their actual expenses.

I think probably you gentlemen are not informed as to just what is being done by this Executive Committee and your committees that have been laboring for you, and how much time they have put on that work.

I think it would be a terrific step backward to reduce the dues to the point where we would have to curb the activities of our Society, especially at the present strategic time, when it is absolutely essential that every committee of the Society should function, and that we should be running on six cylinders and not two.

I think the Doctor probably doesn't realize that the new Constitution and By-Laws, which created the Executive Committee meetings and the respective committees, that was adopted in 1930, brought with it these necessary increases in expenses, and carried with it the increase in the dues.

Dr. Addison G. Brenizer (Charlotte): May I say one word before a vote is taken on this?

I had no idea of the scope of the activities of the Executive Committee of the State Society before I became a member of it. You have had read to you here by Dr. McBrayer the minutes of these meetings, to give you some idea of what they are doing.

The very fact that the depression is on and money is a little hard to get is causing changes to take place. Changes are taking place in social trends. Socialistic ideas are coming to the fore.

I think on that account it is important to have this committee of vigilance, which is really what it is, on hand now more than ever before, and in times like these, just as in war times, one must spend a certain amount of money to keep up the machinery, to keep it going, just as Dr. Wright has said. I think we need every bit of this money that we are collecting and very likely will need in the next several years more still.

The medical profession cannot stand aloof from the Legislature, the Church and the State and expect things to go along, without our even taking a hand in them. We would like to do that, perhaps. As one of our friends said the other day in speaking of these proposals with regard to the Committee on the Cost of Medical Care, "If I have trained myself, if I have made myself worthy of selection before my colleagues, and worthy of selection by the public, why can't I do that alone?"

It is glorious to be able to sit in your office and have your patrons, but you will not be left alone, as you will see from Dr. Olin West's paper tomorrow and several others that will be presented. You are not going to be left alone. You can't be any longer. And the cost of the functioning of this Society is going to increase more and more as we go on. I should hate to see that money withdrawn.

Dr. Gaul: Mr. President, I move suspension of the rules in order that we may take action at this time on that resolution.

Dr. H. B. Hiatt (High Point): I rise to a point of order. There has been no second to the original motion. All this discussion, it seems to me, is out of order.

President Wright: Dr. Hiatt, your point of order is well taken. I was endeavoring to let any one who wished discuss this amendment, even if out of order. But if you insist, I will rule with you.

Dr. J. T. Hoggard (Wilmington): Mr. President, I think our By-Laws provide that an amendment must lie on the table for twenty-four hours and any motion, such as Dr. Gaul just made, therefore would be out of order.

President Wright: Dr. Hoggard, your point of order is well taken. This can be brought up for consideration after twenty-four hours, and that would be tomorrow evening at eight o'clock, or at the next session Wednesday evening. In the meantimes it lies on the table.

Dr. C. B. Williams (Elizabeth City): Mr. Chairman, may I ask as a matter of person privilege that that resolution be read once more? If

you decree not to do that, I won't be offended, because it was my fault. I wasn't here when it was originally presented.

President Wright: I want to give you a little information that I happen to have.

In the state of Kansas they have increased their dues from three to five dollars, and then in 1930 from five to seven. In Wisconsin the dues were ten; they increased them to fifteen; in 1933 they decreased from fifteen to twelve. In Texas, they decreased their dues from ten to eight, then put on a registration fee of two dollars, putting it back to ten. In Louisiana they increased it from four dollars to seven. In New Hampshire they increased it from four dollars to six. In Vermont they decreased it from ten dollars to five, but I understand they pay extra for their Journal, which was included in the ten dollars. In Oregon they decreased their dues from twenty-five dollars to twenty, then to fifteen. New Jersey has decreased her dues from fifteen to ten. Georgia has increased from five to seven. Maine has decreased from ten to eight. In Connecticut there hasn't been any change in the amount of dues in ten years. Their dues are four dollars. Tennessee's dues are four dollars. Nebraska's dues have been decreased during the panic from eight to five dollars. South Carolina's dues are five dollars. Virginia's are five dollars. I am informed by Dr. West, Secretary-Manager of the A. M. A., that those states which have decreased their dues have invested funds from which they receive dividends.

I just give you that to let you know that we are not extravagant at all in the activities we are carrying on and that we are not charging exorbitant dues to the members of this Society.

Dr. Mitchell, this amendment to the By-Laws that you have introduced will be brought up for final action at the next session of this House of Delegates next Wednesday evening in this room.

. . . A motion was made that the meeting adjourn . . .

. . . The motion to adjourn was duly seconded . . .

President Wright: A motion has been made and seconded that we adjourn. All those in favor let it be known by saying, "Aye," opposed, "No." The motion is carried and the meeting stands adjourned.

. . . The meeting thereupon adjourned at eleven-fifteen o'clock . . .

SESSION OF HOUSE OF DELEGATES

Wednesday, April 19th, 1933

The session convened at 8:15 p. m., in the New Dining Room of the Hotel Sir Walter, Raleigh, N. C., President Dr. John B. Wright presiding, and Secretary-Treasurer Dr. L. B. McBrayer acting as Secretary.

President Wright: The House of Delegates will come to order.

We will first hear the report of the Nominating Committee.

Dr. G. G. Dixon (Secretary Nominating Committee): Mr. President, the Nominating Committee wishes to present the following report:

We, the Nominating Committee of the Medical Society of the State of North Carolina, place the following names for your consideration as officers and committeemen for the ensuing year, 1933-'34:

President-elect—Dr. P. P. McCain, Sanatorium
First Vice-President—Dr. Robert L. Felts, Durham
Second Vice-President—Dr. H. D. Walker, Elizabeth City

Committees:

MEDICAL SOCIETY FOUNDATION

Dr. J. P. Matheson, Charlotte (5 years)
Dr. M. L. Stevens, Asheville (4 years)
Dr. L. B. McBrayer, Southern Pines (3 years)
Dr. J. M. Parrott, Raleigh (2 years)
Dr. J. B. Sidbury, Wilmington (1 year)

OBITUARY

Dr. C. M. Van Poole, Salisbury, *Chairman*
Dr. C. R. Sharpe, Lexington
Dr. W. Houston Moore, Wilmington

LEGISLATION

Dr. Benj. J. Lawrence, Raleigh, *Chairman*
Dr. T. W. M. Long, Roanoke Rapids
Dr. Wm. H. Smith, Goldsboro

MOORE COUNTY MEDICAL SOCIETY MEDAL

Dr. A. H. McLeod, Aberdeen, *Chairman*
Dr. Deryl Hart, Durham
Dr. Wm. deB. MacNider, Chapel Hill

COMMITTEE TO CONFER WITH STATE NURSES' ASSOCIATION

Dr. Addison G. Brenizer, Charlotte, *Chairman*
Dr. V. M. Hicks, Raleigh

PRINTING

Dr. L. B. McBrayer, Southern Pines
Dr. J. W. Dickie, Southern Pines
Dr. E. C. Judd, Raleigh

COMMITTEE ON HOSPITALS

Dr. J. F. Highsmith, Fayetteville, *Chairman*
Dr. Ivan Proctor, Raleigh
Dr. J. W. Davis, Statesville
Dr. Foy Roberson, Durham

COMMITTEE ON CANCER

Dr. C. C. Carpenter, Wake Forest, *Chairman*
Dr. P. F. Whitaker, Kinston
Dr. J. L. Adams, Asheville

DELEGATES TO AMERICAN MEDICAL ASSOCIATION

Dr. D. A. Staunton, High Point, 1934 and 1935
Dr. R. L. Pittman, Fayetteville, 1934 and 1935

DELEGATES TO MEDICAL SOCIETY OF VIRGINIA

Dr. B. M. Nicholson, Enfield
Dr. J. W. Parker, Seaboard
Dr. J. N. Robertson, Fayetteville
Dr. R. W. Taylor, Oxford

DELEGATES TO SOUTH CAROLINA MEDICAL SOCIETY

Dr. R. M. Beam, Roxboro
Dr. Lucius N. Glenn, Gastonia
Dr. H. W. McKay, Charlotte

DELEGATES TO NORTH CAROLINA DENTAL ASSOCIATION

Dr. Hugh A. Thompson, Raleigh
Dr. J. W. Campbell, Gastonia
Dr. R. A. Allgood, Fayetteville
Dr. T. D. Kitchin, Wake Forest

Place of Meeting: Pinehurst

COMMITTEE ON ARRANGEMENTS

Dr. J. W. Dickie, Southern Pines, *Chairman*
Dr. W. C. Mudgett, Southern Pines
Dr. S. M. Bittinger, Sanatorium

Respectully submitted,

PAUL H. RINGER, *Chairman,*
G. G. DIXON, *Secretary.*

Mr. President: I move the adoption of the report.

PRESIDENT WRIGHT: Any discussion? All in favor of adopting the report let it be known by saying "aye." Opposed "no." The report is adopted.

The next item on the program is the report of the Finance Committee —Dr. Coppridge.

Raleigh, N. C., April 19, 1933.

Dr. John B. Wright, President
North Carolina State Medical Society

Sir:

Your Committee appointed to review the Report of Secretary and Treasurer wishes to tender the following report:

We have studied the report in general and find that it contains a carefully prepared and accurate account of the business of the Society for the past year.

The financial statement shows that the Society has a cash balance of $5,698.90, divided as follows:

With Citizens Bank and Trust Co., of Aberdeen	$2,988.05
With Page Trust Company of Aberdeen:	
Checking account	936.21
On Interest account	2,000.00

The latter institution is closed and the $2936.21 in this bank is at present not available. The accuracy of these figures is proven by a certified statement from each bank.

This leaves a balance of $2988.05 for operation of the Society for the coming year, together with some scattered dues yet to come in. We note the expenses of the Society last year were $7713.21, of which only $5560.00 was collected from the members, thereby causing a heavy drain on the reserve.

We feel that the amount expended was entirely justified by the large amount of work that has been done to protect the interest of the medical profession with the various governmental agencies.

Respectfully submitted,

William M. Coppridge, *Chmn.*
Joseph B. Green
Thomas L. Carter.

. . . On motion the report was adopted . . .

The Secretary, Dr. McBrayer, then read the Report of Committee on President's Address.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS

Your Committee on the President's message to the House of Delegates and the President's Address to the Society beg leave to report as follows:

Notwithstanding the economic conditions of the country at this time and the desire on the part of some county societies to lower the fellowship dues from $5.00 to $3.00 per annum, we concur in the President's expressed belief that these dues should remain unchanged. We also concur in his belief that the small honorarium paid to our effiecient and invaluable Secretary is wholly inadequate.

The President in his Address to the Society showed a broad understanding of the grave problems that confront the medical profession at this time and of the dangers that threaten if these problems are not solved. We earnestly recommend to every member of this Society a careful reading of this address when it appears in the Transactions in order that he may better understand that he as an individual has a responsible part to play in the solution of these problems which the President so clearly presented in his address, and which we commend to you for careful consideration.

Respectfully submitted,

Jno. Q. Myers,
H. A. Newell,
M. L. Stevens.

. . . On motion the foregoing report was unanimously adopted . . .

President Wright: The next on the program is Unfinished Business.

. . . Secretary Dr. McBrayer then presented the proposed amendment to the By-Laws introduced at the first session of this House of Delegates by Dr. Mitchell of Wilson, which would reduce the annual dues from $5.00 to $3.00, and a motion that it be tabled was carried unanimously . . .

Secretary Dr. McBrayer: We have another amendment here. It reads: (Secretary McBrayer then read the proposed amendment to the By-Laws relating to changing Mitchell and Avery Counties from the Ninth to the Tenth District.)

. . . A motion was made and seconded and voted that the amendment be adopted . . . See page .....

AMENDMENT TO BY-LAWS

Dr. M. R. Adams, Councillor of the Ninth District, presented the following:

"Resolved, That Chapter VII, By-Laws, Councillor Districts, be amended by taking from the Ninth District Mitchell and Avery Counties and placing them in the Tenth District."

RESOLUTIONS

Dr. McBrayer presented the following:

"Resolved (1) that the Mitchell-Watauga Counties is hereby dissolved.

"Resolved (2) that the two counties, Mitchell and Avery, be consolidated in one County Society known as Mitchell-Avery.

"Resolved (3) that Watauga and Ashe be consolidated into one county society to be known as Watauga-Ashe.

"Resolved (4) that the counties of Wilkes and Alleghany be consolidated into one Society to be known as the Wilkes-Alleghany.

"Resolved (5) that the Pasquotank-Camden-Dare Society be dissolved and the following two societies be created as follows: (a) Pasquotank-Camden, and (b) Currituck-Dare.

"Resolved (6) that the officers of Mitchell, Watauga, Wilkes and Pasquotank shall continue as officers of the consolidated County Societies connected with each until the next annual election of officers in December, 1933, when the two counties in each Society or such of them as are in good standing and attend the annual meeting in December for election of officers shall vote for officers. In all other respects the counties above mentioned shall function as one Society, as grouped, from and after the passage of this amendment to the By-Laws, by the adoption of these resolutions."

Dr. W. W. Johnson of Manteo, Currituck County, stated that it was impossible for Currituck and Dare to have a County Society on account of the magnificent distances and the few physicians in those counties, and moved as a substitute for the 5th resolution the following:

"Resolved (5) that Currituck be added to the present Pasquotank-Camden-Dare Counties Society, to be known as the Pasquotank-Camden-Currituck-Dare Counties Society. The substitute was adopted and the resolutions were adopted as amended in toto."

Dr. G. G. Dixon: I would like to ask if that request for consolidation of these societies comes from the county societies.

Secretary McBrayer: The Mitchell and Avery County Societies made that request when Dr. Wright and Dr. Parrott and myself visited them, and the Councillor from the districts represented in each one of these, including the Councillor of the First District at Elizabeth City, recommended these others.

Doctor Dixon: I wondered if he recommended it at the request of these county societies. If the county societies themselves have not requested it, it should not be done. If you tell them to do something they won't do it. Dr. McBrayer, I could not advise as to resolution 5.

Secretary McBrayer: I can say for the benefit of Dr. Dixon, the county society adjoining Mitchell butts into this, and they have no county society in Avery. Mitchell County is willing. In Watauga-Ashe they have no county society in Ashe. In Wilkes-Alleghany they have no county society in Alleghany, and this is an endeavor in these instances to get the society that is functioning to become godfather to these other counties that do not function.

In regard to Dr. Williams—I don't think he is here—but he requested this the other night, and he talked to me again about it once or twice, and I know the situation down there. He made a note that we look into it.

President Wright: Is there any other business to come before this House of Delegates? If not, we will have a motion to adjourn, and then

we will have our last and fifth General Session immediately upon the adjournment of the House of Delegates.

Dr. J. M. Parrott: Before we make a motion to adjourn the House of Delegates, I desire to make a few remarks. I seriously doubt if this Society realizes the amount of work that our officers have done. I think the Society wants to know how much work the officers have done for us, and the very high class addresses and constructive work through the year. I happen to know about it, because I have been with them a little bit, not much, but I know how extensive their activities have been. They have gone from the mountains to the sea; they have given their time and done everything possible, and given their thought and labor without cost to this Society, and done so freely. And in justice to them I think all of you ought to know what they have accomplished during this year.

I am sure that Dr. Manning and Dr. McCain in their administrations will do the same kind of constructive work. I believe the profession in North Carolina is in better shape tonight because of their efforts than it has ever been before. I can see more evidence of it in the profession in North Carolina than I have noted in twenty years. (Applause)

President Wright: All in favor of adjourning the House of Delegates let it be known by saying "aye." Opposed say "no."

. . . The motion was carried and the House of Delegates of the Medical Society of the State of North Carolina adjourned sine die . . .

PROCEEDINGS

GENERAL SESSIONS

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

SIR WALTER HOTEL
RALEIGH, N. C.
APRIL 17-19, 1933

FIRST GENERAL SESSION

TUESDAY, APRIL 18, 1933

The Eightieth Annual Session of the Medical Society of the State of North Carolina convened at nine forty-five A. M. in the Ball Room of the Sir Walter Hotel, Raleigh, North Carolina, Dr. Verne S. Caviness, Chairman, Committee on Arrangements, presiding.

CHAIRMAN CAVINESS: I will ask all past presidents to come up on the platform.

I now call the Eightieth Annual Session of the Medical Society of the State of North Carolina to order. I will ask everyone to stand and we will have an invocation led by Reverend E. C. Few, pastor of the Edenton Street Methodist Church.

REVEREND FEW: Our Heavenly Father, we give Thee praise for the Christian ministry of bodily healing and for all of the helpful discoveries and achievements in the realm of medical science. Especially do we thank Thee for these unselfish men and women who have given themselves zealously and earnestly and painstakingly to the study and the practice of medicine. Grant, O God, that always they may find their highest satisfaction and their greatest compensation in the knowledge of the fact that they have been servants of their fellow men, and co-laborers with the eternal God.

Grant, we pray Thee, unto all of the sessions of this body a sense of Thy fellowship and of the guidance of Thy spirit. Through Christ, Jesus, the Great Physician, we pray. Amen.

CHAIRMAN CAVINESS: It is now my privilege and very great pleasure to present the gavel to, and thereby present to you, the President of the Medical Society of the State of North Carolina, Dr. John B. Wright.

. . . The members arose and applauded . . .

The President's Address

SOME PRESENT PROBLEMS OF MEDICINE

Dr. John B. Wright, Raleigh, N. C.

The honor you conferred upon me by electing me as your President should be and is a highly coveted one. It carries with it a great responsibility and an opportunity for service. The year now closing has been one in which our profession along with the rest of the world is undergoing a crisis. Emergencies have been thrust upon us in such rapid succession that we can scarcely realize the gravity of the situation we find our profession in today. The years of prosperity following the World War have taken wings and flown to the ends of the earth. During the prosperous years, big corporations were formed overnight; bond issues were passed by municipalities, counties, states and our nation; tax-free stocks and tax-free bonds were bought and sold and prices soared; fortunes were amassed to the extent of almost inconceivable magnitude; Teapot Dome and other oil and power and radio deals were consummated; foreign stocks and bonds were sold by big business at enormous profits; our banks were overflowing with deposits; our national, municipal and individual credits seemed to have no limit; we were spending money as though it had no value; entertainments and jazz with its accompaniments monopolized the radio programs. While all of this was taking place in the social and financial world, may we ask ourselves what was the medical profession doing?

In 1923 our death rate was 12.0 per thousand. This was during the prosperous times. During this period of prosperity, medicine was not taking part in all the wild speculation and participating in the profits of the market places. But our health boards were busy improving and extending sanitation, thereby adding to the length of life, increasing human efficiency, combating contagion and making our State a more desirable place in which to live. Our laboratories were busy manufacturing biologics and serum; our research men were studying until late at night with poorly equipped laboratories and limited material with which to make experiments. In fact, the entire medical profession was on the job of pouring out of our laboratories life saving discoveries.

When the bubble broke and the wail of the saxophone ceased, the bread lines began to multiply in number and grew longer and longer each week; unemployment increased; big business curtailed; banks broke; stocks tumbled lower and lower until the final crash of the stock market came. More than twelve million in North Carolina alone found themselves out of work; more than five hundred thousand souls became dependent on charity for clothing, food, fuel and medical attention. And how did the medical profession meet this catastrophe? Its members did not follow the example of the banks and big business by curtailing their life saving work; they did not close down their laboratories nor stop their

research activities; but let us look into their record and see for ourselves what medicine did do.

In the prosperous year of 1923 the death rate was 12.0. In 1932 when the bubble had broken, our death rate had fallen to 9.6 per thousand; thereby producing a saving of seven thousand lives in North Carolina annually. This was done in the face of unemployment, undernourishment, unsanitary housing and no aid for the sick other than the magnanimity of the medical profession. How could this life saving be achieved under these adverse conditions? The only answer to the question is by the fidelity of our doctors, the improvement in health facilities and sanitation, and the new discoveries made in our research laboratories. Do we want to go back to the conditions that were existing in 1923? In the business world the answer would be "Yes"; but medically speaking, the answer is "No."

While the Teapot Dome scandal was being pulled off in Washington and the Veterans' Bureau was being pilfered and worthless foreign stocks were being unloaded on our innocent purchasers by the big interests, Dr. Fred Banting was working out the discovery of insulin and by this discovery the dreaded disease, diabetes, was overpowered; and a great life saving discovery was added to the many credited to our profession. And while tax-free bonds and stocks were changing hands and corporations were issuing so called securities in enormous proportions and millions were racking their brains over jig-saw puzzles, George Minot was racking his brain and studying and experimenting and the result of his scientific investigations was the discovery of liver extract as a cure for pernicious anemia. These and many other life saving discoveries are the products of medicine during these troublous times.

The Christian Church is founded on the life and teachings of Jesus of Nazareth, the Great Physician, and any outside additions to or subtractions from are detrimental to the success and usefulness of the Christian Church. Should the Christian Church be directed by men who are not Christians, then Christianity is doomed. The same is true of medicine. The care for the sick must of necessity be centered around and directed by the medical profession. There can never be continued progress in life saving and public health by turning the management over to others than members of the medical profession. Our health departments cannot function as they should when they are run by laymen and politicians and dominated by lay boards. Medicine must retain control of its own affairs or its future is doomed. Medicine had no part in bringing about the financial crisis now upon us, yet this fact does not alter the conditions that medicine must face. There are so many problems to be met by doctors that time and space forbids a discussion of them all.

We must in view of the various extraneous attacks and suits that are constantly being hurled at medical men remain closely allied and stand or

fall together. We must not be unmindful of the encroachments from outside and face problems as they are and not as we wish them to be.

A glance at the scientific program of this meeting would do justice to any medical society, but its value is only that of science. Our position as physicians from the economic side has largely been lost sight of although it is mentioned in our Constitution. During the last year we have heard and read much of the many economic problems, in which the medical profession must of necessity take part. Many studies in medical economics have been made, some quite extensive, covering every possible phase of medicine.

Let us examine the plan of health insurance. Insurance must be compulsory to be effective. In Europe the working classes have given compulsory insurance a trial. It has been demonstrated that under this plan in Europe a poorer quality of medical care is furnished than the indigent sick in America receive. This poor quality of medical service is due to the excessive number of calls upon the time and energy of the physician, for those who receive free medical care are either constantly running to the physician for every trivial ailment, whether it be real or imaginary, or compelling the doctor to make many unnecessary calls at their homes. These unnecessary visits for physicians have reached such proportions in England that many of the panel physicians disconnect their telephones between the hours of ten o'clock P. M. and seven o'clock A. M. This is a fine state of affairs should a patient have an acute attack of gall stone colic at midnight or a ruptured appendix or any other serious emergency illness.

In Germany they have had health insurance in operation for the past forty-eight years. Their percentage of pus appendix cases necessitating drainage is much greater than in the United States. This condition raises their mortality rate and the average length of hospitalization per patient.

Compulsory health insurance does not prevent sickness nor reduce economic loss. Before the World War the average loss of time for sickness of the American laboring man was 6.2 days per year. In Germany it was 9.2 days per year. Since 1923, we are reliably informed, the loss in Germany has increased to 16.5 as against 6.2 in America. This is a fine showing for health insurance after forty-eight years of operation! Dr. Edwin Leik, a German, is quoted as saying, "Only parasitic physicians or pure fools join in the praising of compulsory health insurance." And again he says, "Social insurance is today organized to fill the feed troughs of bureaucratic drones." It has worked an injustice on the medical profession that is only paralleled by its injustice to the sick to whom it offers an inadequate, inferior grade of service. The doctors will suffer under compulsory health insurance, but in the last analysis, it is the people who will suffer most.

The insurance plan whether compulsory or not certainly tends to an enormous amount of malingering. Successful healing does not depend upon

effective organization, but upon the training, the intelligence and the interest of the individual doctor in his individual patient. The central figure in any system of medical practice must be the doctor and he cannot discharge his duties properly under a system which places a premium on quantity rather than quality of service, which is skill.

We are paying more now for life insurance than for being sick. Life insurance is not in reality life insurance, but death insurance because we have to die to get our insurance. There can be no malingering in life insurance, but not so in health insurance. Health insurance is dangerous from the standpoint of the patient. It makes self-pitying hypochondriacs out of people who are free to go to a physician at any time. They feel they are paying for being sick; therefore, they must receive some service for their money. If the insurance is not compulsory, they drop it; if it is, they simply must get sick to get some reward for their money. The Philadelphia Record states, "Of all the professions, medicine has responded most sincerely and immediately to scientific discoveries. To endanger a continuance of this progress by shackling medicine to political control is to sacrifice one of the greatest assets of our civilization." When we substitute governmental control in medicine for independent, individual action, we stifle self expression, individuality, initiative, courage, confidence and enthusiasm.

These investigations seem to have left out a very important class. This group that has been left out of their report seem in the past to have been easy marks. They have been the victims of schemers and uplifters, political grafters and reformers. I refer to the taxpayers. They have been burdened in so many ways and are carrying now the burdens of government, schools, roads, municipal, county, state and national bonds until their burden seems to be crushing them. To add to these burdens the cost of medical care will, I am sure, be the straw to break the camel's back. The plan is socialistic, for medical care is but one of the many problems of our people; food, rent, clothing and fuel also concern them. If socialization of medical care is right and just, wise and useful, then by the same logic a general socialization of all of the necessities of life is likewise defensible.

Workmen's compensation is another problem medicine has neglected. Throughout the various stages of liability insurance and workmen's compensation legislation, the medical profession manifested very little interest. Legislation and administration of the act was formulated and dominated principally by insurance companies, employers, laborers and social workers. In the beginning of the conpensation acts, the medical care of the worker was looked upon only as a sort of first aid and inspection to determine the amount of compensation. Some of the compensation laws only allowed from two weeks to thirty days provision for medical care. The cost was limited to from $25 to $50 per case. These social workers and insurance companies and employers manifestly placed the doctors'

function in accident cases as that of an expert witness only. With this as the dominant use for the doctor, there came a struggle for the control of the physician with the sole purpose of having his biased testimony in favor of small compensation. This condition did not last many years before it was clearly demonstrated that the period of disablement as well as the amount of compensation depended far more upon the quality of medical service than upon medical testimony. When this was realized, there was a rapid rush in amending the laws to increase the amount of medical care and to be more liberal as to time and money granted for this purpose.

In the evolution of compensation acts, we have now reached the conclusion that every phase of the administration of compensation laws depends for their success upon the skill of the physicians and surgeons. This goes even to the field of prevention of accidents. No compensation court can possibly be held and render decision as to the extent of the injury received and the amount of compensation without both of these vital factors being always dependent upon medical judgment. The character of medical service rendered to a great extent determines the length of disability, and yet there is only one state in the Union with a law providing for a physician in any official administrative capacity with the compensation administration.

The whole compensation problem seems to be rapidly approaching a critical point in its evolution. Whether it will evolve into a law-controlled system of health insurance for the industrial population or into a system of adequate professionally directed ethical care for the injured, depends very largely upon the extent to which the medical profession through its societies awakens to the situation and acts intelligently. There is urgent need for medical representation, in an administrative capacity, on our Industrial Commission. This need has long been recognized and demanded by our national industrial board. This request from our national board has received but little attention from the medical profession. May I not urge upon this Society the importance of action in this matter in a conservative and constructive manner upon an ethical plane of our duty to ourselves and society?

Another encroachment on the practice of medicine is contract practice. A thorough and careful study of the various forms of contract practice leads us to the conclusion that it is not in keeping with the high ethical traditions of the past history of the medical profession. It should be discouraged and it is the duty of organized medicine to resist this encroachment on its high standards of caring for the sick. The purported advantages of contract practice are that it furnishes medical and surgical services at a lower price and induces patients to seek medical care more readily. Its advocates claim for it that it puts the practice of medicine on a quantity (economic) basis, but it overloads the physician, who under this form of practice is in reality an employee, and because of the overloading, there is bound to be a lack of direct responsibility and personal

interest in each patient. This is sure to produce a poor quality of service. It produces cut-throat competition and terminates in a lowering of the standards of the practice of medicine. There are, however, a few instances in which contract practice is permissible, such as railroad surgeons and physicians in mining and construction camps.

Big business has crowded out the small business; it has formed large organizations with combinations of buying and selling and production agencies. This condition, however, is not limited to the business world as the medical profession is having a titanic struggle to keep out of the onrushing floods of commerce. Medicine has always in the past been individualistic and has never needed or used an intermediate agent to bring together the patient and the physician. The profession as a whole has maintained that each patient should have the right to select the physician of their own choice. This is abolished under contract practice.

Another encroachment on the practice of medicine is the practice of universities and medical schools. Dr. Pusey says:

"The practice of medicine for pay by universities and medical schools and hospitals and other corporations as a primary function, or as a function unrelated to the primary purpose for which they exist, would seem to be in almost complete opposition to the principles underlying the welfare of medicine. It is unfair competition. In the case of universities and medical schools and hospitals, they utilize endowments and taxes and (freedom from taxes) and other extraneous sources of income which furnish equipment and support in competition with the independent practitioner who must obtain all of these through his own endeavors.

"Medical schools must have patients both for the purpose of teaching and research. In the past they obtained their clinical material from the sick poor. Of late this is rapidly being superseded by medical schools enlarging their incomes by taking part pay and then full pay patients and we have now arrived at teaching and research institutions which are in effect in the general practice of medicine for pay. This is demoralizing and unwholesome competition and should be strongly opposed."

No student from a medical school can possibly have the office equipment and facilities and the reputation to compete with his teaching professors and the institution from which he graduates. This condition should have serious consideration from organized medicine. It will make the field of medicine less inviting to the ambitious young man with the inevitable result of a less desirable class of young men entering upon the study of medicine.

The indigent sick is another serious problem for the medical profession to deal with. The last report given out by the Administrator of Federal Relief in our State declares that more than 26% of our population are to be included in this classification which means that there are more than 780,000 persons to be cared for by the physicians of our State at less than cost to the doctors. We want the poor cared for, but that is not a

medico-economic responsibility. It is a society responsibility. We are willing to supply the medical care, but not the economics.

In 1920 we had 175 free clinics in the United States; today we have 8,000. The increase in population in our country in the years 1920-30 was 1.3%, but during these ten years, the doctors of the United States treated without cost more than fifty million people annually. Figure this enormous amount out at $2 per patient and you have one hundred million dollars annually, representing the charitable work the medical profession is performing. I doubt if half that sum is contributed by all of the medical foundations in a ten year period. The medical profession should not be expected to contribute of their funds to all charitable organizations and then treat all the charity poor in our State without charge.

Our cities and counties and states and our nation seem to be perfectly willing to feed and clothe and furnish fuel and do all other social necessities for the indigent in our State except contribute to their relief in sickness. Society will seek to get medical services at the best possible terms. If we continue day after day to give our services to the indigent sick in our State, then we will most certainly continue to pauperize ourselves.

I have visited in person during the past year most of the county societies in our State and I find that our profession has cared for the indigent sick all over North Carolina and they have now reached the point that it is a physical and a financial and a professional impossibility for them to continue this service unaided as the number continues to increase due to the improper hygienic surroundings, including poor food, fuel and clothing. Our doctors have gone willingly and freely to the remote sections of our State furnishing medicine, gas and oil, and the upkeep of their cars without pay until they have now reached the point where the credit of a great many of them is gone and they are humiliated to the point of having to say to the indigent sick: "If you can buy me the gas to enable me to go to see your wife and child, I will go; otherwise, I cannot."

It is impossible to measure the interest that the doctor has in his private patients; the self sacrifice that he willingly gives to those who look to him for relief from disease; and, the love and the untiring devotion and attention that he manifests toward his patients with a yardstick of dollars and cents.

During this period of social unrest, the medical profession should remain unified and organized for the purpose of continuing to give its noblest contribution to mankind and to protect the dignity and the honor of the ancient profession of medicine. We, as a profession, are entitled to make a decent livelihood, but that should not be our primary purpose. Our purpose is to serve society. Society is served by the three great professions, the ministry, law and medicine. Ministers who are concerned with the problem of their own livelihood are neglecting their social obliga-

tions. The ministers' duty to society is redemptive. Lawyers have to make a living but the legal profession as such also has a social obligation. Its duty toward society as a whole is to administer justice. The medical profession must rise above the selfish attitude of "My duty is to my own private patients; all the patients who do not look to me for relief I am not concerned about." The complete problem of disease belongs to the medical profession and we must confront this problem squarely and provide an adequate solution of it. Our country must not remain half healthy and half diseased. No one but the medical profession can find the proper remedy for this vexing problem.

Medicine has been sacrificial in the past and medicine has given scientific discoveries too numerous to mention. Doctors have frequently risked their lives for the advancement of science and to save lives. Medicine has freely given to charity, yes, medicine, of course, is a mission of mercy. Besides "heart," medicine has "mind." This mind must be scientifically trained and besides heart and mind, the medical profession has the power of "organization." We have the power when aroused of concerted social work. We have freed our country of the quack medical schools and placed medical education on a scientifically sound basis. This achievement was due solely to the concerted efforts of medicine. We still have a great task before us that can be completed only by medical statesmanship. We must trust that statesmanship in our profession.

Another problem for medicine to consider is the treatment of the sick by Government physicians in Government hospitals, especially the veterans of the World War who are being cared for by the Government for sickness not service connected. I have no criticism of the Govenment in caring for all service connected disabilities, but there is no reason, nor excuse, for the class legislation of medical care of veterans for non-service connected disabilities. As Walter Davenport says, "It makes no difference under our present laws whether a man stopped a bullet on Flanders Field or while running bootleg liquor." The Government gives them both the same treatment. *Southern Medicine and Surgery* editorially says, "Doctors have to bear their full part of the general load; and, in addition, we are carrying a load 'for doctors only,' which load is being constantly and rapidly added to by 'friendly enemies.' Our legislative bodies of the past ten years have passed laws encroaching more and more on the domain of medical practice; more and more taxing private doctors to get money to pay Government doctors to attend the patients of the private doctors; charging doctors for the privilege of practicing medicine and then, by treating these doctors' patients in Government hospitals, making it impossible for the private doctors and private hospitals to make a living."

This condition is not true of any other group of taxpayers in America. Why take the doctors' livelihood away from him and not away from any other taypayers? The Government may enter into the practice of medicine even further than caring for the veterans, by directly expanding its public

health service to include the treatment of individual citizens for a variety of conditions and it may sponsor a plan for compulsory health insurance, whether the plan be health insurance or an expansion of the public health service. The physicians of the country are of the opinion that the results would be a lowering of the standards of medical service. In either case it would bring medicine directly under Government supervision which means medicine would be in politics, and, believe me, politics is no fit chaperon for medicine.

These facts are presented to you to give you an idea of the trend of affairs economically in medicine and to impress on you the need of thorough organization of our profession in order that we may make our contribution to whatever solution is deemed best.

We would not do ourselves credit should we fail to include our Women's Auxiliary as one of the vital assets in our great work. We need all the help we can get in developing real useful medical citizens. The Women's Auxiliary can be a tremendous power for good and with their aid, we can exert an influence to be reckoned with. The Auxiliary can aid us greatly in telling the true story of medicine to the public.

In closing may I not urge you to go back to your county and build up the strongest county medical society possible? We are not organized in our counties as we should be. Dr. A. J. McLaughlin has well said, "We speak of the organized medical profession, but its organization is little more than provision for periodic meetings for reading and discussion of papers on scientific subjects. An exaggerated sense of ethics makes many physicians shrink from anything like business organization." Yet, organization on a business basis is essential. I cannot too strongly urge upon each and every member of this Society the necessity for contributing more liberally of your time, thought and ability in your respective county societies and for helping build an organization that rises above a narrow sense of exaggerated ethics to a broader conception of the unlimited opportunities for service to your communities and your profession. Thereby, "Laying up in store for yourselves a good foundation against that time to come that you may lay hold on eternal life."—First Timothy 6:19.

Chairman Caviness: In every state meeting of our Medical Society, we have a number of very pleasant occurrences, and one of them is due to occur at this time. I now recognize the President-elect of the Medical Society of the State of North Carolina, Dr. I. H. Manning, who will now perform a very pleasant duty. (Applause)

President-elect Manning: Members of the Medical Society of the State of North Carolina: Dr. Wright, on behalf of the Medical Society of the State of North Carolina, it is my pleasure and privilege to present to you this jewel in appreciation of your service to the profession of this state. In season and out of season, in office and out of office, you have labored diligently, unselfishly, valiantly, for the good of the profession, and we thank you. (Applause)

President Wright: Dr. Manning, fellow members of the Medical Society of the State of North Carolina: I appreciate more than I can express to you this emblem as a token of appreciation for my poor services during the past year.

All I can say in accepting this is that I had no conception of the great opportunity for service until I was drafted to help carry on the great work for organized medicine.

I shall wear this with pride, and shall accept it, made from metal that is pure, as a pure bond of friendship between me and my profession. (Applause)

. . . President Wright accepting gavel and plaque presented by M. L. Stevens:

During the year this was sent to the medical profession (referring to the gavel), and I received this letter.

. . . President Wright read the letter received from Dr. Stevens as follows:

Asheville, N. C., April 15, 1933.

Dr. John B. Wright, President,
North Carolina State Medical Society,
Raleigh, N. C.

Dear Dr. Wright:

For centuries custom has decreed that the presiding officer of a court, a senate or other legislative body, or an assembly such as this, shall have as a symbol of authority a gavel with which to call the assembly to order, and as an aid to maintaining orderly procedure of the business to be transacted.

For years I have observed that the President of this Society was not supplied with one. In presiding over this body last year, especially over its rambunctious House of Delegates, I realized that such an instrument or implement was much needed. So after the meeting I commissioned a friend who is an artist in wood carving to make the one which I herewith turn over to you. In order that this gavel might signify the fullest measure of authority there is carved on the front of it the face of Aesculapius of whom we are all humble disciples. The handle is the staff of Mercury, the rod and serpent, or the Caduceus which has become the emblem of our profession. The plaque is the Seal of our Society. I believe we will all respect its call for order. If we do not—it might be used to crack a nut, though it is not intended for that purpose.

I ask you, Mr. President, to accept this gavel for your use and for the use of your successors in office.

With kind personal regards, I am

Sincerely yours,

MLS-L M. L. Stevens.

PRESIDENT WRIGHT: In accepting this gavel and this plaque, I feel especially honored to be the first to use it, and it makes me realize that the medical profession is always alert to its needs and for the things that tend to make medicine useful, competent and efficient.

The giver of this to the profession is one of the most loyal members of the North Carolina medical profession. He has lived in that healthy, beautiful section of North Carolina where the air is made pure by the green foliage of the trees and others like it from which this gavel and this plaque were made. They are emblematic of the economy and of the efficiency of things that are eternal if we would but see them and use them.

And, Dr. Stevens, we thank you for your thoughtfulness and for your useful gift to us.

Many a man would have just given us the gavel but there might be a time when force would be used with this gavel and the table might be weak, or possibly it might have a glass top. Therefore we have the plaque, and with pleasure and pride I use it for the first time officially to call this Society to order. (Prolonged applause)

PRESIDENT WRIGHT: The next item on the program is the presentation of the Moore County Medical Society medal for the best paper presented before the last meeting of this Society. I will call on Dr. J. W. Dickie, Chairman of the Committee on Award, of Southern Pines.

DR. DICKIE: Mr. President, Gentlemen of the North Carolina Medical Society: As the chairman of this Committee, there devolves upon me at this time the duty and pleasure of announcing this award.

Before doing so, I would like to call your attention to the printed rules governing this award. You will find them in the back of your program. The award is made to the essayist who, in the opinion of this Committee, presented the most meritorious paper at the last meeting of the Society.

I wish I could take full advantage of this opportunity to impress on all the members of the Society the real significance of this medal. The object in giving it, of course, is to stimulate members of the Society, in preparing papers, to prepare the best possible papers. We would like for every member of the Society to be interested in this award to the extent that we of the Committee and of the Moore County Medical Society think it merits. And with that object in view and in mind, we would welcome suggestions from any member of this Society.

The Committee, consisting of Dr. Parrott and Dr. Myers and myself, have decided that the award for the year 1932 shall go to Dr. Charles I. Allen of Wadesboro. (Applause) Dr. Allen, will you please come forward? I am afraid when you gentlemen see Dr. Allen that you will think that we have awarded this medal to him on the basis of his appearance rather than on the merits of his paper, but if you will recall his paper which was read before this session a year ago—the title of it was "An Improved Splint for Treating Fractures of the Lower Extremity, Showing Reduction

and Skeletal Distraction Attachments"—you will agree, I think, that we have awarded this medal strictly on the merits of the paper.

Dr. Allen, it is with a feeling of a deed well done that this Committee makes this award to you at this time. We feel sure that you will take a just pride in your accomplishment, and I can assure you that we take an equal pride in making the award to you, feeling certain that it will meet with the full approbation of this Society. I congratulate you. (Applause)

Dr. Allen: Dr. Dickie, Mr. President, Ladies and Gentlemen: I find myself today somewhat in the position of a very timid and bashful young man of my town. On one occasion, he was walking up street with a young lady who slipped and fell, and he stood idly by as she regained her feet. And later when he was asked by someone who had seen the incident as to why he had not assisted her, he gave as his excuse that he didn't know where to take hold. (Laughter)

And as this is the first medal that I have ever received, I do not know where to take hold. I have considerable doubts in my own mind as to whether I deserve this medal or not. However, I will say that any man who treats many fractures deserves some medal (laughter) for as a rule you get little pay, and if you stick to it long enough, you will get a lawsuit. (Laughter)

I do want to express my appreciation, my deep appreciation, for this medal, and the kind words of Dr. Dickie, and the honor you have bestowed upon me. (Applause)

President Wright: We will now have an address by Dr. Olin West, Secretary-manager of the American Medical Association. Dr. West!

Dr. Olin West: First of all, I wish to bring to the members of the Medical Society of the State of North Carolina the greetings and the sincere good wishes of the American Medical Association, and to pledge to you the best possible effort on the part of the administrative personnel of that body to render any service that it can render that may be helpful in promoting the cause of medical organization in this great state. We would like for this Society to feel that it is the American Medical Association in the State of North Carolina. We would like for each component county Medical Society of this state organization to feel that, within its own jurisdiction, it is the American Medical Association, and we would like for every individual member of this Society to feel that in his own office and in his daily work he is the American Medical Association.

The American Medical Association is yours. It is what you make it, and there is no official that has any sense of proprietorship in the Association, but every individual member should have that sense of proprietorship.

I want to extend, Mr. President, a very cordial invitation in behalf of the Board of Trustees and the general officers of the Association to any of you and all of you who may come our way to visit the offices of the American Medical Association to see everything that is there, from the smallest printing press in the sub-basement to the most important part of

the work of every department. You will be welcome. You will be given full opportunity to see everything that you want to see, to ask any question that you wish to ask, or offer any criticism that you wish to offer, and your visit and your suggestions and even your criticism will be very sincerely appreciated.

Mr. President, and gentlemen, I have not prepared any formal address for two reasons: first, I haven't had time to do it, and second, I can't do it anyhow.

I want to begin by telling a sort of serial story, so to speak, a story in about four or five parts.

Not very long ago, I was in one of the greatest of all our democratic institutions, the smoking room of a Pullman car, and sitting there when I came in was a very distinguished looking gentleman, a pompous looking gentleman, but the smoking room of a Pullman is a great leveling institution. He was engaged in conversation with a very nice looking gentleman, who didn't look quite so important, and I found great interest in listening to the conversation as it proceeded.

It afterwards developed, on the basis of information provided me by the conductor of the train, that this very distinguished looking gentleman was in fact a very distinguished lawyer who represents some of the greatest organizations of the United States in his legal capacity. I was particularly interested in a story that he told of an experience that he had had when his services were sought by a great industrial organization, not for trying cases but for giving advice concerning some plans of organization which the officers of this concern had evolved.

To make his story short, it was in effect that he had been approached, had been paid a handsome retainer fee, and that the plans that the officers of this concern had in mind had been turned over to him to criticize, primarily with a view to their certain adoption. They revealed, he said, after examination, that it was the purpose of this concern to buy up a great number of plants, industrial plants already in existence, many of which were rather sadly run down, to manipulate the stocks and bonds of those organizations in such manner that the parent organization would be sure to realize a tremendous profit, and to unload, as is the habit in those matters, on the unsuspecting public.

I was more interested when this lawyer went on to state that he had advised his clients that the adoption of their plans would not only be unsound business practice, but that it would be absolutely opposed to public policy, and finally, that it would be an absolute dishonest transaction.

You can imagine what happened to him. He was immediately discharged. But those of you who are familiar with the developments of the recent past, including the overthrow of that great industrial empire presided over by Samuel Insull and other similar incidents, are certainly aware of the fact that the practices that were proposed in that individual

case have come within recent years to be the accepted practices of big business.

The other man who was in the Pullman smoker, a less pretentious looking individual but a very solid citizen nevertheless, proceeded to tell this story: He said, "I am a merchant in a little city where I have been engaged in business for more than twenty-five years. We have organized the commercial interests of the city into a Chamber of Commerce, and some time ago, two or three years ago, a man appeared before our Chamber of Commerce with a proposal that the instalment buying and selling plan should be adopted as the policy of the business men of our community, and that the methods for selling goods under this plan should be so arranged and modified as to extend every aspect of the plan in order that in instalment selling, the period for payment would be extended and, in other words make it easier to sell everybody something and mortgage incomes for anywhere from one to ten years for payment."

He said that he and one other merchant in the city were the only ones that opposed that plan, but it was adopted by the Chamber of Commerce, and the merchants of the community all went into it very enthusiastically and immediately increased their sales pressure, extended the liberal terms of buying and selling. He and his friend, being afraid of that procedure, immediately announced, although they had been engaged in credit business for many years, that from that particular day on they would engage in a strictly cash business. He went on to describe what happened, but the final result was that every merchant in the community except these two who had opposed this super-organization were "busted," flat "busted," and that he and his friend who opposed it were sitting pretty. Though their business had been reduced in quantity, they were still able to pay their debts and to carry on and keep their heads up, and were not harrassed by the dozens of troubles that had overcome the other business concerns of the community.

Recently I had one of the most interesting conversations with a doctor in one of the greatest states in this Union. I attended the meeting of a district medical society in that particular state and was talking with a group of gentlemen. I noticed this fellow hanging around on the outskirts, and he tried to get a word in with me a time or two and finally succeeded.

He said, "Doctor, I am very anxious to see you. I want to tell you a story. I must tell you about this thing."

"All right," I said, "I will be glad to see you."

As soon as possible I went over in the corner with him and he told me this story: He said, "I have been engaged in the practice of medicine in my community for more than twenty years. I have had a fine practice. I have been able, when my books were balanced at the end of each year, to accumulate enough to make a considerable saving out of my income.

"In 1928, when we were riding on the wave of so-called prosperity," he said, "I saw that everybody around me was getting rich, at least they said they were. My associates in the social life of the community kept

coming to me and telling me how many thousands they had made on this stock and this stock and the other stock, and they were certainly spending more money than they had ever spent before.

"Well," he said, "I knew nothing about stock gambling, but I thought the matter over and I finally decided, 'Well, I am not going to gamble, but I am going to get mine while the getting is good.' "

And then he announced that he was going to Europe for three months and let the public draw the inference that he was going there for the purpose of scientific study. He came back and let it be known immediately upon his return that he made considerable increases in his professional fees.

He said, "Doctor, you wouldn't believe it if I were to tell you what the immediate results of those procedures were." He said, "The people poured into my office and brought their money with them. It wasn't very long until I had much more than I could do, and I had to secure an assistant. The work kept pouring in, and a little later on I had to secure another assistant. I had to double my office space. I had to buy a lot of expensive equipment. I had to take on three extra girls, office girls. And I made more money, the money poured in in tremendous amounts for me."

He said, "It wasn't very long until I discovered that the quality of service that I was rendering was not as high as that which I had rendered as an individual private physician but," he said, "I had gotten this thing started and I couldn't stop it.

"Nineteen twenty-nine came along and," he said, "the depression passed us over until the end of the year." And, by the way, at the end of eight months, I believe he said, he balanced his books and found that while the money had poured in, it had also poured out, and that his possibility for saving with the tremendously increased income was certainly no greater and probably less than it had been under the conditions of his individual private practice.

"Well," he said, "the depression finally hit us and my practice left me over night. I finally screwed my courage up to the point of asking some of my best patients why they had quit me, and they all gave the same answer: 'Doctor, you have established a reputation as being the highest priced doctor in all this country and nobody here is now looking for high priced service.' "

He said, "I had destroyed myself by establishing a reputation as a high priced doctor."

In the very beginning, this man had asked me in a very pathetic sort of fashion, "When I tell you my story please don't tell me I have been a damn fool, for I know it." (Laughter) So when he got through, I said, "Well, doctor, I will keep my implied promise, but I will tell you that you got exactly what was coming to you because you commercialized the practice of medicine to the 'nth' degree."

I have a friend in Chicago who is one of the administrative officers of the American Medical Association. He is a very charitably inclined gentleman, and he is one of these fellows who always hides his charity

whenever he can. He told me this story the other day: He said, "I like to help folks that need help, and I like to do it without any display. There were two families in my community that I had observed for some time, and I finally satisfied myself that they needed help and that they were worthy of being helped.

"So," he said, "I sneaked around and got to them and I helped them out, gave them this and gave them that and gave them the other, gave them money and gave them commodities. Finally, I was called on to take part in the operation of a public relief agency in the community, and the first thing I found out was that these two families that I had been helping surreptitiously and patting myself on the back, thinking that I had been doing a generous and a noble deed, had been on the relief lists for many months. And a little further investigation developed the fact that both of them were on two other organized relief lists. Further investigation developed the fact that two of my personal friends had been doing the same thing I had been doing and had been carrying them supplies and money."

These relief organizations are supposed to be extremely highly organized and thief-proof. But the facts speak for themselves.

A number of years ago, after the great World War, our government entered into a program involving the care and relief of veterans, a program that absolutely ignored the principles of sound economics, a program that threatened to bring disaster to the public through its untoward effects on the practice of medicine, and actually to destroy many of those great humane institutions that have been erected in our communities all over this land, the non-government owned hospitals.

The American Medical Association, strong in the belief that the government should provide the very best possible care that could be provided for every veteran whose injuries or disabilities were service-connected, opposed the legislation whereby the benefits of government subsidy should be extended to those whose injuries and disabilities had no service connection and who were able to pay for medical and hospital service.

The legislation was enacted, and you all know what happened. It got to the point where the expenditures of government under the provisions of these various acts grew to such a tremendous figure that the very financial integrity of the government was endangered.

These stories represent a situation, they illustrate an actual situation that has existed in this country for some time. They have a bearing on the effects of the methods of big business on the practice of medicine and on the public welfare, and they are stories that could be duplicated and reduplicated and told over and over as illustrating actual conditions in communities all over the United States, with the one possible exception in that story about the doctor in Pennsylvania.

And yet, within the recent past, certain committees and groups of various kinds, agitators, amateur and professional, and theorists, have

promulgated the idea that the very methods that fail, the very methods referred to in the telling of these stories, should be applied to the practice of medicine.

The recommendations of the majority group of the Committee on the Costs of Medical Care in my opinion—and I don't say this in any spirit of carping criticism at all; I express merely my own convictions (I am perfectly willing to yield to every man the right to have his convictions)—are nothing much more than proposals that the practice of medicine should in the future be conducted on the principles that have failed in the application of big business methods in this country.

There are certain basic principles of economics. I believe that that old law of supply and demand began to work when time began, and I believe that it will work until time ends. We can fool with it and we can mess it up, but we always have to pay the penalty for our messing.

And, by the way, I am going to stop just long enough to say that I think there is a situation that has developed in the field of medicine that has been brought about to a very great extent by disregard for that fundamental law of supply and demand which is one of the basic principles of economics.

We have in this country today approximately 142,000 physicians engaged in practice which gives us about one physician to about every 680 of the population, a ratio that is not equaled in any other country in the world. We lose year after year from 3,000 to 3,600 physicians out of the ranks of the profession. With less than half the medical schools that formerly operated in this country, many of which, by the way, were frankly nothing more nor less than diploma mills, we are turning out today nearly as many physicians as we turned out at the peak of production, at the time when we had about 160 medical schools.

Last year nearly 5,000 men were graduated in our own medical schools. We not only have to absorb practically that entire output in the United States, but we have to absorb a comparatively large part of the production of the medical schools of our sister dominion, Canada, and I understand that at this moment there are in European schools somewhere between 1,500 and 3,000 American medical students .I don't know just how many of those are engaged in graduate work, but from the best information I have been able to secure, there are probably at least 1,500 American medical students in European schools, practically every one of whom expects to return to the United States for practice.

That situation is one that deserves the most serious consideration not only by organized medicine and by our medical educators and institutions, but also by the public. I don't know what we are going to do about it, but I have the personal opinion that somehow, somewhere, we must get over to the public the information that the ranks of medicine are crowded, and that it is not a field that offers any very great security of income, at any rate, to those who go into it over and beyond a certain number that can be properly absorbed.

Of course, every other profession is crowded. I went into a big law office the other day and I saw a room nearly as big as this full of desks and tables, and I saw sitting at those desks and tables, men 40, 45 and even 50 years of age, many of whom, I was told, were graduates of the finest law schools in the United States—Harvard, Yale, and the rest of them—who have never been able to rise beyond the dignity of a law clerk in the hire of some other lawyer who has been a little shiftier and a little more inventive and aggressive than they.

But this, in my humble opinion, is coming to be a pretty serious matter.

Then there are basic principles of ethics, and I want to say, Mr. President, that in my opinion the greatest protection that has ever been erected for the benefit of the medical profession itself, and for the protection of the public in its relations with medicine, is to be found in the principles of medical ethics.

Now, there is one fundamental established principles of ethics, and that is that honesty pays and nothing else does. That principle has got to be more generally recognized in the life of this country, in professions and outside of them, that it apparently has been recognized in the recent past.

Then there are the underlying biologic principles which affect the very laws of nature herself.

Scientific medical knowledge is based on biological principles and laws, and the application of that knowledge must be made through medical practice with strict regard for these biologic principles and laws.

The old law of cause and effect is absolutely immutable. We can mess it up just like we can mess up the laws of economics, but after we have done all of our messing, the penalty has finally got to be paid. And certainly the experience of humanity in this world has proven that the methods of evolution must win over the methods of revolution.

I believe that if the service of medicine is to be delivered to the highest possible benefit for the good of mankind, it must be done with the strictest regard for the principles of medical ethics and with some regard at least for the principles of economics, sound economics, and with the strictest regard for the immutable laws of nature herself.

The institution of medicine, my friends, is an age-old institution, built upon the basis of the critically observing experience of a humane, intelligent, devoted, efficient, and constantly progressive profession. There is a thread of criticism that runs through the pronouncements of recent commissions and committees and groups and critics of the medical profession. There is the intimation that constantly recurs in their reports and in their statements, to the effect that medicine has not been progressive. I resent that criticism, because I believe it is absolutely unjustified.

There has been no progress that has exceeded the progress that has been made in the development of scientific medical knowledge, or, for that matter, there has been no improvement in any field that has outranked the improvement that has been made in the methods that have

been devised for the application of scientific medical knowledge for the good of mankind.

Medicine has not been static. Almost from the beginning, with few interruptions, the progress of scientific medicine has been constant, and the impovement in its methods, in the methods of the medical profession in applying that knowledge, has been almost constant, and I think that scientific medicine and the medical profession have made a pretty worthy record. (Applause)

I am one of those who believes that there is no occasion, nor any need, for undermining or for overthrowing the institution of medicine as it has been builded.

From the very beginning, as scientific medical knowledge has been developed, it has been passed on without money and without price by those who have developed it to those who have come after it, always with the admonition that in its use the interest of the individual patient and the interest of the public should be first served. And, in my humble opinion, the profession of medicine has done pretty well in carrying out that principle.

The service of medicine can be rendered only through one instrumentality, and that instrumentality is a qualified, free, untrammeled profession, not made subject to the dictates of unqualified opinion or direction, and certainly not made subject to the dictates of politicians. (Applause) The essential values of the institution of medicine can be preserved only as the professional aspects of medical practice are preserved. The public for its own sake must come to realize that truth.

Now, lately, under the—well, I nearly said "propaganda," but I will say publicity, though I am frank to say that in my humble opinion much of the so-called publicity matter that has been disseminated from certain sources lately could really be classified as propaganda for a certain purpose and that, the socialization of medical practice as a result of that publicity under the stress of the present unfavorable economic situation, a purely artificial situation developed by widespread disregard for simple fundamental principles of ethics, economics and biology. All sorts of artificial schemes for the provision of medical service have been promoted. Many of them have been promoted on a purely commercialistic basis. Even their promoters admit that they are commercialistic, that the purpose of their organization is to make money for the promoters. Many others have been sold to a certain part of the medical profession in this, that or the other community. And some others have originated within the profession itself.

I have had opportunity to observe the operation of many of these schemes. Many of them have already failed. Others are doomed to failure. And most of them have failed in the sense that they have not provided good medical service.

I am frank to say that I am not able to understand how the costs of medical care can be reduced through a process which involves the

payment of commissions ranging from 25 to 75 per cent to the promoters of these schemes, which commissions must be paid out of the very first money that is collected for their operation and which must be continued in some amount for usually a definite period of years.

More than that, most of these schemes depend for their successful operation (and I use successful there in the sense of financial success) upon the efforts of paid solicitors who also get commissions for their services.

There have recently been organized or promoted, and there have actually been organized, a few so-called hospital associations, generally called hospital service associations. Most of them, in so far as I can ascertain, have been organized on the basis of immediate necessities. They are having a hard time. They want income. They want income immediately. Many of them have polished and extravagantly ornamental plants that must be kept up somehow. So they are resorting to the organization of these associations involving the selling of memberships, and the hospitals make the terms of service.

I don't want to see any worthy hospital fall and I hope that since the President of the United States has made certain changes in the policy of the government that some of our hospitals that have been in danger of falling, will find it possible to carry on. But I confess frankly to a fear that under some of the plans that have been adopted by certain groups of hospitals or that at least are being considered by them, these hospitals are going to be put into the practice of medicine up to their necks, and that the members of the medical profession who work in them are going to find themselves dictated to in a manner that may not be conducive to the delivery of the best medical service.

That is my fear. I may be all wrong about it. I don't want to intrude my views, to insist on my views being accepted by anybody. And I confess also that I have the fear that the adoption of these artificial schemes of one kind or another may in time prove to have been the very first steps towards the adoption of a program of voluntary sickness insurance which everywhere, in so far as I can find from a study of the history of these matters, has been the forerunner of compulsory insurance, a system under political domination and control.

I have observed that in a number of places where these various artificial schemes for presenting medical service have already been put into operation that one of the immediate effects has been to stimulate the development of somewhat similar schemes under the direction and control of less responsible and less competent persons, and that these new schemes stimulated by the development of the first have invariably offered more for less, and many times have offered what it was not possible for them to deliver.

Now, there can only be one answer to those procedures, and that is the pauperization of the profession, and the deterioration of the quality of medical service.

I am old-fashioned enough to believe that if the experience of medicine has proved anything in the world, it is that medical service must of necessity, in order to be most effective, be rendered on a strictly personal basis. It is a service that must be rendered by a human being in possession of scientific medical knowledge, and skilled in the use of the methods for the application of that knowledge, to a human being who has no such skill and no such knowledge. And, in every human being there is that intangible factor which you may call what you please—the mind, the temperament, the soul—but that something that must be dealt with in addition to the purely physical manifestations of health or disease. And the successful practice of medicine involves the art as well as the science of medicine. In my humble opinion the art of medicine has had some awful wallops in the last few years and needs greatly to be restored to its rightful place in the practice of medicine.

Group practice, the organization of the medical profession into groups, has been widely advocated, and the principle of group purchases is, according to the majority group of the Committee on the Cost of Medical Care, the very keystone in the arch of the structure which it proposes to erect. There can be no question but that there is a place for group practice. There are groups in the United States that have had a tremendously beneficial influence upon the progress of scientific medicine, but we know that the needs of only a small part of the population can properly be served through that institution which we know as group practice.

To get back to group practice for just a moment: I have no objection to the organization of groups in the ordinary practice of medicine where they can operate to advantage, but I would oppose, and until the dictate comes from organized medicine itself, I am certainly going to oppose the organization of the entire medical profession into groups, and especially if there is any danger that those groups, having been organized, will be subject to political domination or an unqualified lay dictate.

Now, when it comes to group purchase, which some of our friends propose and glorify, there is a very different problem to be considered. I doubt that there is a man in this room who has been engaged in the practice of medicine for ten years that has not seen the pernicious influences exerted on the individual physician and on physicians as a group, through that scheme which we know as contract practice. Mass production methods cannot be utilized to good advantage in medicine except in the rarest instance, and then not for very long. And a mechanized profession cannot deliver the best service to the people.

Contract practice—I have seen it myself time and again—destroys the scientific initiative and the scientific ambitions of splendidly trained men, and the insurance schemes that are being promoted today are, most of them, in effect nothing more nor less than old-fashioned contract practice.

Now, my friends, I know that there are inequities and injustices in the present situation, and I don't know of any phase of the social life of this nation in which you can not find inequities and injustices. There may be certain inequities that can be removed and controlled by the medical profession in its organized capacity. If so, they should be handled. There may occasionally be injustices that are within the control of organized medicine and certainly medicine owes it to itself, and owes it to that public for whose service it is created, as a profession to do everything that is possible to remove these inequities and injustices wherever they may exist.

However, the costs of medical care and all these problems of medical service cannot be considered and solved as a thing apart. They must be thought out and dealt with in the light of the whole picture of the general economic situation. I am just fool enough to believe that if the medical profession could have had control of the acts of financiers and industrialists and commercialists and of government, and of another group, the so-called philanthropists, that many of the difficulties that have developed, psuedo and real, would never have developed.

But we can't control those things. However, there are certain things within our own field that we can control and that we ought to correct, if in need of correction, in order to do our simple duty as a scientific profession upon whom the public must depend for service to meet the very deepest needs of humanity.

I remember that one time I had an automobile that I had driven for many thousands of miles. I had become very greatly attached to it. I didn't have money enough to buy a new one, but it looked like I was going to have to buy a new one. I took it around to a mechanic that I knew very well, who had been a patient of mine when I was practicing medicine, and told him that I was "busted" and didn't know how I was going to buy a new automobile.

"Well," he said, "let me look this one over."

He came back and said, "Why, Doctor, all your old car needs is to get the grit out of the crank case and out of the engine and to put some new piston rings in it; tighten it up to keep grit and oil from squeezing by."

Now it may be that we need to get a little grit out of our own machine somewhere and that we need to tighten up a little bit here and there, and possibly in an occasional instance, we need to tighten up a great deal.

The medical profession is created for the service of the public. The public is not created for the medical profession and the profession has never had any other idea than that. As I said a while ago, from the very beginning the injunction, from those who have developed medical knowledge and who have devised the methods for its application, has always been, to those coming after, to use that knowledge and those methods so that the interest of the individual patient and the public should be first served. That has come to be the highest ideal of organized medicine

and that principle is unalterably written into its rules of ethics and into its organic laws.

There are certain things that we get for being doctors. A number of you used to know my friend Richard Douglas. (Mac has heard me tell this tale several times but it illustrates the point that I am going to tell it again.) Douglas used to drive very fine horses. He did a tremendous practice. Once in a while he would get tired after he had driven his horses hard and he would say to his driver, "Henry, let them walk," and would pull them down for a walk. Then he would begin to think of all he had to do—go to this place, that place, do three operations at the hospital—and he would say, "Henry, damn them, make them go on. That is what they get for being horses."

Now there are certain things that doctors get for being doctors. There are certain things that a profession gets for being a profession. And those duties must be met, and they must be fully met if the profession is to continue to exist as a profession.

I have been greatly encouraged lately, (and I am going to quit, Mr. President, I have talked too much and know it and am not going to impose on you any more) through the organization in various state medical associations and county medical societies throughout the country of committees that are being generally called "Committees on Public Relations." I have watched their activities, and I am convinced that these committees have come to constitute one of the strongest arms of medical organizations. They afford an avenue of approach to medical societies. They offer an opportunity for medical societies to establish contacts with civic organizations and with the various agencies and influences in the communities in which the local profession serves.

In many instances, public health programs are being advanced splendidly, or at least the plans have been laid for their advancement, through the initiative of these Public Relations Committees of medical societies, and through the contacts that have been established through those committees.

Now public health is a field of medicine, and in my opinion it must be kept a field of medicine if public health work is to serve its purpose and if the interest of scientific medicine and the interests of the public are to be properly served.

The methods of prevention of disease that can be applied need to be applied by the practicing physician in the interest of public health, in the interest of scientific medicine, and in the interest of the profession of medicine as an institution.

Mr. Chairman, my plea, if I have one, is for the preservation of the professional aspects of medical practice, because I say again that there is only one instrumentality through which the benefits of scientific medical knowledge can be brought to the people—a qualified, untrammeled medical profession. I would admonish medical societies and the public to examine with a critical eye and with the utmost thoroughness any new

artificial scheme proposed for providing medical service. Be sure that in the adoption of such schemes you do not finally defeat the very ends that you hope to serve.

I believe that the medical profession should take the initiative in formulating plans that may be necessary to meet the demands that exist in any particular community. I believe with your President that medicine must be the master of its own house but that it shall make the service of that house of medicine as fully available as it is possible for them to make it, and retain the values, the essential values of the institution of medicine as it has been erected through ages of service on the part of a devoted and intelligent profession.

Mr. Chairman, I thank you and the audience. (Applause)

President Wright: Dr. West, we thank you sincerely for this able address discussing in such a logical way the important things confronting our profession at this time. The next address is by Dr. Addison G. Brenizer of Charlotte, counsellor for the 7th District. Dr. Brenizer! (Applause)

Dr. Addison G. Brenizer (Charlotte): Mr. President and Gentlemen: This paper is an expression of the reaction of the private physician to the report of the Committee on the Costs of Medical Care. When this paper was written, I did not know that you were going to hear so much about the cost of medical care as you have so far, and so much better than I can do it. It is impossible for me to entirely reframe the paper, but I will spare you as far as I can.

. . . Dr. Brenizer then presented his prepared paper as follows: (Applause)

DISEASES, DOCTORS AND DOLLARS (THE COSTS OF MEDICAL CARE)

By Addison G. Brenizer, A.B., M.D., F.A.C.S., Charlotte

This contribution is in answer to the recommendations of the majority of the Committee on the Costs of Medical Care released November 29, 1932, and in answer to the article appearing in the *Atlantic Monthly*, January, 1933, by William Trufant Foster under the title of "Doctors, Dollars and Diseases." I am reversing the wording of his title for the sake of laying emphasis on the premises where I think stress rightly belongs.

I am leaving the figures mostly to the exhaustive report made by this Committee and am dealing largely with certain situations in human and professional relationships which take on, at least in the Doctor's mind, an importance far beyond the costs of medical care. These relationships are largely psychological and in posing them, it is necessary to go a long way around to give proper background to their importance.

"With this background let me call your attention to certain facts which are essential to an understanding of the problem. The total annual cost of medical care in the United States is about $3,600,000,000. This includes all that is spent for the care of the sick and injured and also the entire expense of public health activities. About $514,000,000 or 14 per cent of the total amount is met by taxation. Approximately $188,-000,000 is provided by private philanthropy. Seventy-nine per cent of the total, or about 2.9 billions of dollars is paid by individual patients for families for medical care. Of this amount, about $446,000,000 is for dentistry, $270,000,000 for hospital care, and the huge sum of $665,-000,000 for drugs, half of which is for patent medicines. There remains about one billion dollars which is paid to the physicians of the country. Now, three and a half billions of dollars seem a huge sum for the nation to pay for medical care. It is, however, only about 4 per cent of the national income, and when compared with other things for which people spend their money it does not seem so large. For instance, a considerably larger sum than the total amount spent for medical care is spent for tobacco, candy, chewing gum and cosmetics. The difficulty is not in the total amount spent but in the uneven distribution of the costs of sickness. The 2.9 billions spent by individuals is not distributed evenly over the 123 millions of the population but only among the 60 per cent of them who are ill in any one year. Further than this, of the 60 per cent who are ill, about 80 per cent of them have light illnesses which cause little financial burden. The real hardship comes to the 20 per cent of the 60 per cent of the people who have what has been called 'catastrophic illness.' We can further eliminate the rich and the indigent from the problem. The great complaint comes from the so-called moderate income class, which, of course, makes up the bulk of those who receive any treatment at all."

No one can doubt, on reviewing the work done and the gathering of this material as the basis for the reports, the intelligent and efficient work of the members of the Committee, the authors of both major and minor reports and particularly the research staff. Here are gathered facts worthy of study by all doctors who would gain by perusal of the publications of this Committee, an enormous amount of data upon which to establish their conclusions.

Any fair-minded man, doctor or layman, would readily agree to the principles involved in the list of the so-called six essentials of the Committee's Report. The main differences between majority and minority reports are centered on recommendations I and III, that is group production and group purchase. What is meant by these terms is that there be a country-wide grouping of doctors in every locality for the purpose of a co-operative practice of medicine and that the patients pay or have paid for them into some common fund, from which the costs of the individual's medical care would be drawn.

There is a challenge to the profession in the reports of the Committee, which proves conclusively that there exists a paradoxical combination of idle and underpaid doctors and untreated sick. Dr. Ray Lyman Wilbur, Chairman of the Committee and writer of the introduction to "Medical Care for the American People," which book is a resume and review of the reports of "The Committee on the Costs of Medical Care," states in a personal letter: "There may be a wide range of opinion as to the wisdom and practicability of the recommendations. The facts, though, are obvious and the need of doing something constructive is a pressing one. Dr. Wilbur has further warned the profession: "The doctor must recognize that whether he likes it or not something is going to be done. It is better to have it done by him than to him."

There were the more radical members of the Committee, who regarded medicine in a state of transition, analogous to the state of industry during the early period of mechanization. They spoke of the marked survival of the traditional in medicine, of individualistic practice to which many physicians cling—as did the early handicraftsmen, seeing their independence and their creative skill threatened by the machine.

We are, in fact, so rapidly incorporating and actually embracing so many socialistic ideas in the vacillations and changes in our social trends, that we can hardly conceive into what changes in medical organization the facts uncovered by the Committee of Fifty may be molded.

Conditions of life are changing rapidly and it does seem that while economic and governmental organizations are growing at a rapid rate and church and family are declining in social significance and, at the same time, medical organization has not changed as fast as scientific medical research, that it behooves the medical profession to so organize as to sponsor and plead for, if not demand, just recognition in solving the problems of making available to the whole people the results of scientific research and experiment at a reasonable cost. Mechanical and engineering invention and productivity cannot exist without medical protection and groups and individuals, however powerful, can no longer go their own ways without realizing the meaning of the old phrase, "No man liveth unto himself."

There was once a report of a "Committee of Fifty" on the alcohol question with the simple conclusion that: "alcohol in moderation was not a necessary evil, that a small amount, after the day's work was done, was beneficial rather than not." The Committee itself and the public could never have comprehended the ramifications from this report, nor have foreseen the future of the alcohol question: so-called moderate drinking in the home, rarely moderate, along with the abrupt changes in morals and manners, prohibition and its effects, the political issue, the incorporation of the question in the political platform and even now, what of it? We would now have light wines and beer to appease and satisfy the tastes of the people. Who is it, who so completely lacks a knowledge of human psychology as to think that the people would be satisfied with a placebo

of light wines and beer, after having experienced the quick liberation of corn licker!

While any comment or personal opinion of this report should be based on the report itself and not on what some one individual has to say about it, still there are individual comments being made far beyond the accentuated facts embodied in the report. Quoting William Trufant Foster, a member of the Committee (*Atlantic Monthly,* January, 1933, page 89), "Worse still, under the present 'fee-for-service' basis of private practice, the patient may fall into the hands of fee-splitting doctors, and thus be misled when he thinks he is getting honest advice. The objections to fee-splitting are that physicians thereby gain income without regard to their qualifications; patients are diverted, by misinformation, from the best specialists; the fee is usually exorbitant; men who take these buy-and-sell patients often perform unnecessary operations; and the fee-splitting surgeon is surrounded by paid solicitors, all greedy for money profits. The Committee declares that fee-splitting increases the cost of professional care, degrades the profession, and, in effect, puts the patient in the hands of the highest bidder. What every sick person needs, evidently, is a single agency, in one place, freed from every taint of commercialism which will furnish him all the necessary information." Mr. Foster further states: "It is unfortunate that the Committee having decided that some form of group payment is absolutely necessary, did not recommend compulsory health insurance . . . yet only nine members of the Committee declared themselves in favor of a compulsory system."

All that Mr. Foster says of the evils of fee-splitting is true, but he speaks of the practice as if it were in any way usual. I am rather surprised that he recognizes these evils of the practice, as all doctors, I know, do, since division of commission is a recognized practice in business, particularly between real estate and insurance agents. Fee-splitting to the doctor's mind is a long recognized question of honor and ethics in all medical societies, and is embodied in the oath taken by all members of the American College of Surgeons, a large body including all reputable surgeons of a certain standard surgical training. The more restricted surgical organizations, like the Southern Surgical Association and American Surgical Association, demand even a higher standard of training, experience, contributions to Surgery and an ethics and honor, understood without being sworn to, as one's personal conduct and honor, as a gentleman, are understood.

The medical profession has also been interested and careful to offer guidance to patients and has sought to save the public in foods and drugs, as parents care for their children, to eliminate the noxious and worthless and provide the genuine and, although the American Medical Association for decades has carried on a campaign against nostra and patent medicines, the public still spend $360,000,000 a year for these things, likewise $125,000,000 a year for the services of osteopaths, naturo-paths, and such cults. It is altogether questionable whether the "single agency, in one

place" suggested by Mr. Foster could as well advise the public, as the medical profession at large or the many agencies already existing under the profession's control, like "The American Society for the Control of Cancer."

The medical profession stands aloof from allowing the good works of its individual members to be presented to the public, while irregular practitioners extol their supposed virtues. How else could the public but be confused and accept the much advertised rather than the obscure and wonder at the silence of the orthodox medical profession, if it really has genuine wares to sell, when the irregular practitioners are having their wares boldly displayed. If the public were discriminating and searching, or even capable of judging, without instruction, it might find in the modesty of the medical profession a virtue and a good reason for this reticence as they would find a good reason for the attitude against fee-splitting, amounting finally to the selling of the patient to the highest bidder. To the average citizen, a doctor is a doctor, whether he be physician, surgeon, or dentist, osteopath, chiropractor, veterinarian or drug clerk. The title is not a degree as in Germany, but a name, often a misnomer, a privilege of familiarity in calling the nickname, "Doc," or often and refreshingly, a term of affection. The man who had himself treated by a veterinarian instead of a physician explained: "Well, he's as good as the next one; he boards at the Central Hotel and writes his prescriptions in Latin." To the public, in this country, the title of "Doctor" means nothing, where one pays his money and takes his choice, and where the individual chosen is selected frequently on a basis of his advertised prominence rather than, necessarily, on his ability.

Up to now the medical profession outside of what it has contributed in time and money has depended upon the magnanimity of private funds, like the Rockefeller Foundation, the Carnegie Corporation, the Duke Endowment and others too numerous to mention, literally millions of dollars voluntarily given by magnanimous men to a good cause and likely far in excess of governmental appropriations to be tapped now from the depleted public treasuries. In 1930 $2,750,000,000 was spent for education and $3,650,000,000 for medical care. As a matter of fact, the $800,000 spent by the Committee for the study of cost of medical care was contributed largely from such sources. It is readily understood how such funds might be withheld or withdrawn, if the method of obtaining money were placed on compulsory health insurance, or far worse, "tapping the combined resources of the population," that is taxes. No more natural reaction on the part of these donors would be exhibited than: "Since funds are already provided through compulsory insurance or taxation and since our taxes have become excessive, provision for donations will be made elsewhere."

The physician needs help from the business man and the legislator, he is woefully lacking in these capacities, largely on account of a restricted education along medical lines, for many years, a circumscribed

life and isolation in the pursuit of his professional activities, if he be successful, and the inward feeling that if he employ his time and energy to outside activities at any sacrifice of his professional studies and work, he is not only cheating himself, but the patients upon whom he is applying his knowledge and experience. He must, of a necessity, be a one groove man and the fact that he is a poor business man and legislator is a compliment usually to his professional ability and activities.

In recommending group practice, the Committee took cognizance of the difficulty of obtaining the full-time services of specialists in each branch of medicine, particularly in the smaller towns and suggested an affiliation with larger cities. They did not state who was to choose this affiliating specialist and that his services would be sought for or desired by the smaller group, ambitiously, seeking to solve its own local arrangements.

Just how any particular group is to be chosen in larger cities and who is to choose the group, what is to be done with individuals who collectively represent capacities, capable of offering, when called upon, all expert care, the Committee did not commit itself. Doctors are individuals and they strive for their individuality as shown by the history of medicine and the high position gained through attainment by most of the beacon lights in medicine, frequently with monetary odds and certain psychological situations against them. He prefers to work as an individual in free and amicable consultation with all phases of medical practice in his locality. He really works in a big group, accessible to all and not in a restricted group, where some are starred and the others obscured. There have been few groups of practitioners of medicine, which have been inclusive of the individual capacities of the community, largely on account of the many difficulties, professional and financial, where the several individuals were properly cared for without obscuring their personal initiative.

Once a group, a restricted group, is chosen with all specialties represented, who is to be correlator of the data gathered by the group and who is to splice the puzzle picture together to make up the composite paper diagnosis of the given case? We have not yet arrived at the point where the correlation of data is to be left to the general practitioner, although 70 per cent of cases do not need all this narrow specialization and it is a fact that this 70 per cent would get well if not specially diagnosed and specially treated. Have we not already more X-ray, more clinical and laboratory tests than we can actually interpret and apply? Suppose this mass of data gathered by the individuals were confused and applied to the wrong patient? I have seen this happen. Does it follow, with all data assembled, that a diagnosis can be made on the data? Frequently not. "Medicine is an art which employs the sciences." Is not the art, in other words, judgment of the particular patient's individuality and application of medical data to that particular individual apt to be lost? Are we not treating sick individuals rather than sickness? And does not the individual vary widely with the same sickness?

We now have compulsory education, whether or not our scheme of education is comprehensive enough, embracing a training in matters of health to allow one to wisely choose from the ample supply of material and *personnel* that the orthodox medical profession has to offer: and a large percentage of this public, those supposed to know and leading the public, actually create difficulties and obstructions to medical protection. Compulsory vaccination laws have already been repealed in two states, with the result that most of the smallpox in the United States is now found in these states, and smallpox has no respect for state lines. Similarly the Democratic party voted for repeal of the 18th Amendment —a prohibition which did not prohibit.

It has not been the history of medicine that it has progressed by aid of State or Church, but woefully the contrary by the forcing of individual thought stubbornly and tenaciously through the opposition of medical bodies and through obstructions, barriers, thrown up in the way of the pioneers.

The story is a familiar one to the medical profession and should be known by all laymen: the rational Medicine of Hippocrates, and the Hippocratic Oath; the degeneration of medicine through the Church; the plagues, the pestilences; the revival of independent thought by Paracellus; Versalius daring to study the structure of the human body; staunching the blood flow with a ligature by Pare; vaccination by Jenner; infectious nature of childbed fever, Semmelweis and Oliver Wendell Holmes; of wounds, Lister; of disease, Pasteur and Koch; abdominal surgery, McDowell; the balm of anesthesia, Morton, Long and Simpson. Application: The building of the Panama Canal, Gorgas. All these epoch-making contributions were made by individuals under sacrifice, obstruction by Church and State. The greatest balm given to man, that of relief of pain at childbirth, particularly, was forced by Simpson through the Church, the Church, in turn, preying on the public with the biblical question: "In sorrow, thou shalt bring forth children" and always neglecting to mention a verse, a few lines ahead which described the whole process of a surgical operation: "And the Lord God caused a deep sleep to fall upon Adam, and he slept; and He took one of his ribs, and closed up the flesh instead thereof."

The question of the application of orthodox medicine to the public involves principles far deeper than the costs of the care. The fact that $125,000,000 is spent for the services of naturo-paths, faith-healers, and similar cults and $360,000,000 for patent medicines, as well as millions for chewing gum and candy, millions for sex books and sex cinemas, would indicate that a great many people can and do pay for what they want and have to pay for. At the same time, almost every epic in American history portrayed on the film has been doomed to failure and at a loss of millions of dollars by the producers who, in their turn, if they remain in business, must give pictures the public will buy. This situation arises from that ignorance referred to, on the part of the public, with sur-

roundings altered through civilization, but little changed in their essential primitive nature, possessing instincts and impulses exhibited through their emotions and embodied in the complicated structure of their nervous system.

Any system of general taxation or tapping the federal, state or county treasuries, which would not allow the individual to feel the monetary sacrifice for service rendered, would not only create in the individual's mind a bland acceptance of his rights, but, on the "something for nothing" principle, would actually make him undervalue such service. There are many cases to illustrate the psychology of the ignorant patient who receives "something for nothing," the suspicion aroused since "something" is willingly given for "nothing"; the undervaluation of this "something" received for "nothing" given by orthodox medicine, but charged for by the unorthodox osteopath. I am sure it has been the experience of many physicians, as it has been mine, with servants in his own household, that they have sought the services of an inferior type of doctor at a charge of fee to them rather than the free service of their employer, the physician, on the principle again that the service is more active, more attentive, more interested, therefore, more valuable since paid for. All charitable organizations will point out the dangers of pauperizing their charges.

That the masses of people are improvident, that the poor are always with us, is an accepted axiom. These people not only fail to provide for medical care but for many other items in their budget. Some have no budget at all and these particular ones without budget have always been cared for through the activities of the various charities, the Church, magnanimous individuals and the physician in his private office or hospital.

Other patients could pay the expense of medical care, if in their budget they made a provision for the emergency of sickness, if they did not first pay for every other luxury. And, finally, others will pay no bill that they can get out of, and still obtain credit somewhere. They indulge their willingness and lack of pride to impose on the common knowledge that medical care can be obtained without paying and by going from one doctor to another. The last doctor accepts the new patient, new to him with enthusiasm until he finds out that the patient is another one of the deadbeats or undesirable drifters. I was able to trace one of these drifters from Miami to Savannah to Charlotte, where he had received hospitalization and all manner of services without paying out a penny at any place. The birds of passage and hitch-hikers in automobile accidents passing day and night, usually at night, are a source of expenditure of time, energy and material on the part of the doctor.

The first class, the deadbeats and drifters, can only be weeded out by the establishment of a "Professional Men's Association of Credits and Rating" in each County Medical Society, in communication with each other through the State Medical Society, and the second class, that of automobile accidents, can only be solved by exacting legislation which

will require every automobile driver to carry insurance, making him financially responsible, the tax to be added to the purchase price of the automobile and to the yearly cost of automobile license.

Otherwise, the present collection laws are absolutely insufficient to protect the professional man against improvidence of people willful or not. The doctor as the merchant has not the choice of refusal of credit for nonpayment of bills, nor the privilege of attaching goods sold, nor does he desire to become too money conscious, nor become prominent in lawsuits.

No one more than the doctor realizes the importance of financial aid to hospitals and medical activities and proper legislative adjustments. Before venturing into the practice of medicine, he may have already spent as much as $30,000 on education, apprenticeship and the establishment of his office, not to mention as many as nine years of loss of earning capacity enjoyed even by clerks, while he is being professionally trained. In spite of the costliness of his training, he knows that he is to give his services free of charge to one-eighth of the population of the United States, offering in this way a contribution of at least $365,000,000 a year. On the basis of all business, the doctor's bill for services represents a gross charge from which investment in education, finding himself, equipment and upkeep of office and personnel must be deducted. The interruption of the World War, and there has never been nor could there ever be a criticism of his contribution to this emergency, cost the doctor in substituting low pay for high pay, the disruption of his practice, the loss in life and health, the refinding himself, a fabulous sum never to be accurately estimated. Furthermore the doctor is a selected man, for if he does not possess the necessary professional knowledge, a tolerably charming personality, a kind and stout heart and some business acumen, he will fall by the wayside as many have already done.

With the long years of costly training behind him, with the many items to be deducted from his bill in the way of overhead, charity work, unpaid bills and the difficulty of contending for his position of recognition before his confreres and the public, lawsuits, the doctor should be met with as few other obstructions in offering a quality of training and service and the exercise of his individual initiative as possible, as well as to have the possibility of financial gains further curtailed.

The two major methods of distributing the costs of medical care, previously referred to, are (1) Insurance, and (2) Taxation.

Recognizing for the moment the necessity of some provision in the budget for paying for medical care through any method of saving, whether it be building and loan association, pooling of funds, or insurance, the question arises, will and can the individual or groups of individuals keep up these payments?

A large proportion of people at the lower end of the earnings scale, at the present time, would not be able to pay anything for medical care and would still have to be treated as charity cases. However, many, who

cannot now pay, might join a group, placing their moneys in the savings department of a bank, as is now done with children in the public schools. In this way each member of the group would feel that he was contributing his proportionate part, would have a direct interest not only in his part, but the savings as a whole, and he would have less incentive to malingering and unnecessary sickness costs in dealing with his fellow members, than if he were allowed to throw the financial responsibility upon an insurance company. The local medical society should promote this plan, in collaboration with the savings department of the bank and deal directly with representatives of the group in the collection of fees-for-service.

Corporation insurance as now arranged with the State Industrial Commission does not always allow the fee as listed by the Commission, but rather as dictated by the insurance company. The insurance company, largely for financial reasons, employs its own doctor. This arrangement between insurance company and employee's doctor has brought about several precarious conditions: (1) The right of the injured man to choose his own doctor has been denied him; (2) the services of the employee's doctor are not necessarily the most skillful; (3) the Company's surgeon would give his testimony not as an unbiased expert; (4) the Company's surgeon, also a member of the Medical Society, has to guard against the exploitation of his name, thus protecting one of the important rules of medical ethics, which rule is based on the principle of the doctor's right to obtain work on his ability alone, an ability proven before his colleagues and patients by execution and results. These ethical principles are fixed, or should be fixed in the mind of every doctor: (1) That he not advertise himself in public print; (2) That he not sell his work at reduced prices over his confreres; (3) That he not fee-split; in other words, that he not sell out the sick man to the cheapest or lowest bidder (even though that bidder be a corporation or insurance company). All three of these ethical principles may be broken under the arrangement between doctor and insurance company.

The Industrial Commission also recognizes the diagnostic ability of osteopaths and pays for the services of diagnosis and treatment and the disability, so determined, of the patient. Why should the service of osteopath not be recognized and paid for by the direction of the Industrial Commission to the insurance company? The legislature recognizes and licenses the osteopath and chiropractor as a part of the social and political body, with right to practice and their practice extends to obstetrics and minor surgery. This condition is not surprising since in the legislature of North Carolina there are forty-two lawyers and three doctors and doctors who are able to leave their practices and attend the legislature. These licenses to these irregular practitioners are made law in spite of the fact that the profession through the Board of Medical Examiners, elected by the State Medical Society has established requirements of preliminary general education, four years of study in a Class A medical school, a medical examination and a judgment of personal fitness, primarily to

protect the public against those insufficiently instructed and trained. That politicians and insurance companies would not take a further part in the lowering of medical standards if there were a universal grouping of doctors and patients paid by insurance companies or taxes or both, there is no doubt. They are already doing it. Most laws are passed by lobbying and compromise and when it comes to lobbying, what of the proportion of forty-two lawyers, three doctors, three hundred and eighty insurance agents in the Metropolitan Life Insurance Company alone. Good citizens all, but politicians and agents under the direction of the insurance company, nevertheless, and men wise and fair perhaps, but not medical minded and likely as ignorant of their bodies and disease as people were in the "Dark Ages" when plagues and pestilences prevailed, and would prevail today were it not for medical protection.

At the present time nearly all the hospital care for persons afflicted with mental disease, most hospital care of those suffering with tuberculosis and all the work of health departments are financed by local, state or federal governments in this country. The same is true of the medical care of military and naval personnel, of inmates of prisons, and of other wards of the State, and is quite usual with the general medical care of persons unable to pay its full cost. On account of the inability of the doctor to carry those chronically encumbered, of a necessity, these have become wards of the State. It is true that the above classifications are existing and accepted forms of "State Medicine." Even among these classifications, the government has used poor discrimination and stepped far beyond the necessity of acceptance for medical care those having no right to this service. In August, 1932, 85 per cent of the veterans admitted to the Veterans' Bureau Hospitals had non-service disability and plans for extension to 140,000 additional beds, when 165,000 beds in hospitals throughout the country are already available, were under consideration. These existing beds were sufficient to care for those of non-service origin where they rightfully belong. Also the medical personnel is available, a personnel efficient enough to have manned the army hospitals during the emergency of the War. Why not during the emergency of the peace?

Taxation for bearing the costs of capital investment in government hospitals was estimated in 1928 at over $1,400,000,000, the operating costs of 1930 as about $306,000,000. This was about 47 per cent of the total operating costs of all hospitals as estimated for that year. Of the $306,000,000, $188,000,000 was spent for hospital care of patients with acute illnesses.

The majority report did not recommend either compulsory insurance or taxation, only nine members of the Committee voted for the compulsory system.

The question of taxation was voted against, although the majority report does say that "unless the national income increases so rapidly that many of the families at the lower end of the economic scale are enabled, on a periodic payment basis to meet such costs, some method of tapping

the combined resources of the population must be found." This tapping, however, is not likely to take place, certainly not the federal treasury, already tapped beyond the bottom. The fact that the cost of medical care for the year 1930 was $3,650,000,000, $1,000,000,000 more than the total cost of education in this country ($2,750,000,000) might stay the arm of the tapper.

It is not likely that this overload of the Costs of Medical Care will be dumped on a federal treasury already flowing away at a minus of $500,000,000 a month with Mr. Hoover, finger in the hole and exclaiming: "We must balance our budget." Why even we doctors discovered the import and triteness of this axiom many years ago when we made the discovery that if we would remain in town, we must have enough money left in the bank to pay the bills coming in.

The work of the Committee began five years ago, when, as Mr. Hoover said in his acceptance speech:

"One of the oldest and perhaps the noblest of human aspirations," said the Republican candidate, "has been the abolition of poverty . . . We in America today are nearer to the final triumph over poverty than ever before in the history of any land. The poorhouse is vanishing from among us. We have not yet reached the goal, but, given a chance to go forward with the policies of the last eight years, we shall soon, with the help of God, be in sight of the day when poverty will be banished from this nation. There is no guaranty against poverty equal to a job for every man. That is the primary purpose of the policies we advocate."

Surely Mr. Hoover and Mr. Mellon and Mr. Charlie Mitchell would not have intentionally fooled us like this.

Anyhow the medical profession, with many vicissitudes has been carrying on since the Escleapiades and the Hippocratic School, three or four hundred years before Christ. Hippocrates, like the contemporaries of his time when "that antique world of Egypt and the early Asiatic civilizations, that world, where the pendulum was swinging ever farther and farther away from all fact (saw) something completely new happen." "The Greeks (and Hippocrates with them) came into being and the world, as we know it began" (Edith Hamilton—"The Greek Way").

Legislator and business man, give us a hand—but: "Render therefore unto Caesar the things which are Caesars; and unto God the things that are God's."

President Wright: The next address is by Dr. J. M. Northington of Charlotte, editor of *Southern Medicine and Surgery*. (Applause)

Dr. J. M. Northington (Charlotte): Mr. President and Fellow Doctors: The previous speakers have spoken on the same subject that I propose to discuss. I am going to discuss it very briefly with the addition of suggesting a remedy. I shall speak to the question of "Doctors and Friends of Doctors Must Wield Political Power."

. . . Dr. Northington then presented his prepared paper, as follows:

DOCTORS AND FRIENDS OF DOCTORS MUST WIELD POLITICAL POWER

James M. Northington, M.D., Charlotte

The tradition of medicine is one of peace. The life of the doctor has always been an unremitting warfare against disease and death, and in this warfare the doctor's belligerency is consumed. Then, the doctor knows that his arch-enemy, Death, will surely prevail in the end; and the certain knowledge that he is bound to lose the war which is his lifetime job can not fail to make any other war so distasteful to him that he will not enter it except on dire compulsion.

For medicine, the compulsion has arrived that we make ready for defensive warfare, unless we are willing to await in unpreparedness a second attack from a determined, resourceful, well-financed enemy. The first attack fell flat, not of its own inertia, not because doctors had prepared and offered a strong defense all along the line—although the *Journal of the A. M. A.* and a few state journals offered spirited resistance; but because the general public discounted about 90% the representations of the alarmists, and said in effect that they placed their confidence in their doctors, rather than in those who told them what a sorry lot their doctors were.

The Committee on the Costs of Medical Care has disbanded; but at its final meeting, on the recommendation of its Chairman, this Committee arranged "a continuing organization," The American Committee on Medical Costs—"same old coon with another ring 'round his tail," as Dr. Wingate Johnson so aptly commented.

Soon after this movement was put on foot our own medical journal protested against it on several grounds. Substantially these grounds were that the movement was uncalled-for, that it was unwise, that it was unjust. Subsequent events have confirmed and strengthened this opinion.

It was uncalled-for. There was no occasion for it either in the need or the demand of the people. Then, and now, the general population were (and are) better satisfied with their relations with their doctors than with their relations with their landlords, their grocers, their clothiers, their preachers, the teachers of their children, or their government—County, State or National. Reasonably good medical care was (and is) more readily available to the average man and his wife and children than was (or is) any other necessity or decent comfort of life, and this was the attitude of the people generally. Even after the five years of stirring up done by the Committee itself and by sensational writers who took their cue from the Committee, nearly every newspaper in the land that expressed itself on the subject endorsed the action of the minority in giving doctors a certificate of character and ability and in opposing any radical change from the present method of meeting the health needs of the people.

I am not questioning the motives of the majority of the Committee. It is generally agreed that the rack and thumbscrews of the Inquisition were operated under the orders of pious persons under the inspiration of

the best of motives; but the worthiness of the motives of the torture did not make it any easier on those stretched on the rack.

The Majority recommended:

"That medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists, and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care.

"That the cost of medical care be placed on a group payment basis through the use of insurance, through the use of taxation, or through the use of both these methods. This is not meant to preclude the continuation of medical service provided on an individual fee basis for those who prefer the present method."

It would seem that it was entirely unnecessary to have recommended that those who preferred to pay their doctors as at present would be allowed to do so. The Committee here merely said it did not do a thing which every one knows could not be done, whatever its inclination. We are now taxed to support public schools, but those who prefer to pay *in addition* for private schools for their children, and who have the means to support both, are free to do so. The Committee's recommendation is that *all* be compelled to pay through taxation or insurance. How many doctors would be in private practice in North Carolina 5 years after this plan were put into operation? What would happen to you, or your doctor son, or nephew, or grandson? And one does not have to be foolishly sentimental to feel a lively interest that a profession which he has practiced be continued in dignity and self-respect, and not at the beck and call of every person of every grade of intelligence and morals, who is, thinks he is, or pretends to be sick.

It is to be noted that of the 17 members which the Committee says represented private practice, only one is a general practitioner—and that he voted with the Minority. The Committee says that 55% of the private practitioners of the country are general practitioners and that 82% should be general practitioners. Then why 16 specialists to represent 45% and only one general practitioner to represent 55%.

The continuing organization which is undertaking to put the Committee's recommendations in effect, The American Committee on Medical Costs, has employed a high-pressure publicity expert, a propagandist, and he told us plainly some months ago: "All the technique of modern adult education will be utilized to offset the possible pressure of an organized medical bureaucracy to impose its self-interested will and desire upon the people." Every Chamber of Commerce secretary in the country was written for suggestions as to how the Majority's recommendations could be put into effect. This was back in December. How much of a noise did it make in the home town of any one here? Is it not true, rather than while the Committee was taking 5 years to spend a million dollars, the pop-crackers sent off from time to time to let the sponsors and bill-payers

know something was being done attracted far more attention than what was meant for the big thunder at the end of the study?

It is natural to question: Since the Big Bertha turned out to be a squeegee, why pay any more attention to it. The reasons are at least two. First, there are still too many multimillionaires in the land who would rather finance any kind of meddlesome "study" of the affairs of others than that their own affairs be subjected to scrutiny. Second, the surplusage of expert investigators, out of jobs, has been greatly increased by the addition of a whole lot of former bank examiners and income experts, and ex-members of Mr. Hoover's thousand-and-one commissions—all eager to demonstrate there is something they are good for.

Then, there are many agitators like a Ph.D. second vice-president of a large life insurance company, who, in 1930, with the utmost assurance told us, under the title, "The Future of Medical Practice," that it was all up with us doctors. One of his sentences—"Today we are on the verge of a revolution in this field"—medical practice. The revolution has not materialized; but you may bet your bottom dollar that Second Vice-President Lee K. Frankel, Ph.D., of the Metropolitan Life Insurance Company, a corporation which paid it president, F. H. Ecker, a salary of $200,000.00 last year, increasing it by $25,000 when practically everybody else was being radically reduced, is doing his utmost to bring this revolution about—and there are many others.

The insolent attitude of the State Industrial Commission toward doctors is insufferable. The only thing comparable to it that comes to mind is "handsome Adolf's" treatment of the Jews.

We must do something more than consolidate our ranks and prepare for defense.

Although we are doing our daily work well and keeping reasonably good health care more readily available to our people than is any other necessity or decent comfort of life, we are not doing the best we can. No people or group has ever done that. We should, though, redouble our efforts to afford all our patients all the protection offered by reliable safe methods of disease prevention; and we should let nothing interfere with our plans to keep abreast with advances in curative medicine. In recognition of the special need for post-graduate facilities near at hand and at no expense, a practical course of three or four days is being arranged by Charlotte doctors for some week in the coming summer. The spirit of the instruction contemplated for this course is that expressed by Sir Thomas Lewis in the preface to his new book on Diseases of the Heart:—"We can dispense with trivial details, having something more substantial to put in their places. I have endeavoured to keep to what practice needs and to discuss such things thoroughly."

Further: this unprovoked and unjust attack on doctors, and the expressed determination to keep at it as long as foundations and "foundationers" will keep sweetening the jackpot, is a warning and a challenge to every respectable doctor in these United States. It warns him that there

are powerful forces determined on making him into a cog in a political or an insurance machine, or depriving him of means of making a livelihood. It challenges him to resolve to do neither the one nor the other, to bring all his resources to bear that he be able to maintain his resolution, and to place himself in so strong a position that none will dare wantonly assail him.

Doctors' reputation for peacefulness and reserve has led some into the belief that we will not fight for our rights, and has kept us from seeking the political preferment to which we are entitled. Let us show all and sundry how erroneous is this assumption, and that forbearance means neither simplemindedness nor cowardice.

Let us go into politics. Politics is the science of government; at least, that's what it was before the lawyers and their henchmen made of it the mess that it now is. Every occupation reflects the character of those who engage in it.

Doctors of Medicine and of Dentistry, nurses, pharmacists, "and other associated personnel" are all openly threatened by the Committee on the Costs of Medical Care and its continuing organization, the American Committee on Medical Costs. The Committee tells us the adoption of their plan would result in less cost to patients and more income to doctors and others caring for these patients. The plan contemplates a large overhead expense to non-medical organizers, administrators, "executives" and such like. All this must be paid for; so it is plain that a large percentage of those meeting the health needs of the people would find themselves out of employment and faced with a choice between begging, starving and committing suicide.

Let us go actively into politics for keeps, and restore to politics its original and proper meaning—the science of government. In political office there is far greater need for honesty and reason than for familiarity with the technical details of legislation or administration, and these details can be readily learned. The most valuable members of my own county of Mecklenburg's delegation in the present General Assembly had no training for his present job that any doctor has not had.

In the past week it has been announced that, of the 33 appointments to vacancies on the Board of Trustees of the Greater University of North Carolina, 17 are lawyers; not one is a doctor. Of the total membership of this Board of Trustees, more than a third are lawyers. Will anybody contend that a third of the intelligence of the State is held by lawyers?

The engineers are protesting, and rightly. There is a school of Medicine at Chapel Hill of which the State should be proud. Its standards are certainly as high as those of the School of Law. This school has a right to representation on this Board; and the doctors of the State, regardless of their schools of graduation, are certainly as capable of discharging these duties as are the lawyers; moreover, the best interests of the University would be served by having doctors on this Board in at least as

large number as lawyers; but this will never be so as long as lawyers continue to run the State.

Those who have the care of the sick know more about conditions in the State and the Nation than do the members of any other group. Preachers see men at their best; lawyers see them at their worst; doctors see them as they are. Jefferson learned about conditions in France by looking into the pots and lying on the beds of the country people. He adopted through intelligent choice the method from which doctors learn by daily necessity.

In Charlotte we have prevailed on one of our best doctors to offer for membership on the Council, and another of the same sort for membership on the School Board; and we are going to elect still another to the office of Coroner. I have hopes of inducing another to come out for Representative in Congress at the next election.

The group that cares for the sick—doctors of medicine and dentistry, nurses, pharmacists and others, united, can carry any election in North Carolina; and I propose that we recognize the compulsion which has arrived, discard our tradition of peace, make up tickets carrying the names of those who care for the sick and others who have theretofore stayed out of politics—and elect them.

It may be that there are some here who would ask for precedents. There was a time when doctors did not hesitate to take a part in public affairs somewhat in keeping with their superior qualifications. Of the 56 signers of the Declaration of American Independence 7 were doctors of medicine. Dr. Thomas Dale, a practicing physician of Charleston, served for years as Associate Justice and Acting Chief Justice of the Supreme Court of South Carolina. Dr. James McClurg, the first professor of Medicine in the English colonies, succeeded Patrick Henry as a member of the Constitutional Convention.

Dr. John Faison long represented with credit one of the eastern districts of North Carolina in the House of Representative of the United States. Very recently a family doctor was governor of Georgia. Another is now governor of New Mexico. New York and West Virginia each has a doctor in the United States Senate, and one of Minnesota's representatives in that body is a dentist. But these instances are too few. Where there is one representative of the practice of the healing art in public office—from precinct to National Capitol—there should be a hundred.

The Constitution of the State of New Jersey requires that *at least three* of the members of its Supreme Court must not be lawyers. It does not prohibit the whole court being made up of non-lawyers. My information is that most courts in Germany are made up of one lawyer and two non-lawyers.

One of the first things a body elected after the plan I propose would do is to provide elementary courses in anatomy, physiology, bacteriology and pathology—with demonstrations—in all our high schools. The proper study of mankind is man. Boys and girls who have seen lung cavities,

stomach ulcers and gangrenous appendices can never be induced to believe that disease is mental error, or that it can be cured by jabs at the backbone; nor will they, when they are grown and sitting in our legislative halls, vote to license whatever fantastic cults may be seeking to succeed the dying cults of today.

Our wise and lamented friend, Dr. Cyrus Thompson, loved to quote, "I write unto you young men because you are strong." What avails our strength if we are too simple or too indolent to use it in such a cause as this?—the cause of our own protection and advancement, the cause of finer justice and greater happiness for all our people.

. . . Dr. J. R. McCracken, Waynesville, First Vice-President, was called to the chair by President Wright:

President McCracken: The next is an address by our guest speaker, Dr. Thomas McCrae, of Philadelphia, his subject being, "Methods in Diagnosis." (Applause)

METHODS IN DIAGNOSIS

Dr. Thomas McCrae, Philadelphia

Mr. President, Ladies and Gentlemen:

First, sir, may I express my appreciation of the compliment you pay me in asking me to appear before this Society? Today I am going to speak of rather simple things, of old-established principles. I have nothing new to bring forward.

Firstly, I should like to take as the text this question which I think each one of us should put to himself, "How much are we doing to develop our own powers of diagnosis? Are we making certain that we will be better diagnosticians a year from now than we are today? Are we better today than we were this time last year?" How many of us put as much care and thought on the development and improvement of our means of diagnosis as we do on the improvement of our game of golf or bridge?

Then I should like to plead for an effort to make the whole subject of diagnosis one particularly of intellectual effort, to realize that we can apply our intellects, that we can develop our powers of observation and our powers of reasoning if we will give thought to it.

It is evident that the whole problem of diagnosis rests on two entirely different things: firstly, the collection of facts or observations; and, secondly, the use we make of the facts. It is a nice subject for debate if one is going to make a mistake, under which of these heads he is more ashamed, if he makes a mistake. There is no question in my mind that we ought to be more ashamed of a mistake in the first, in the collection of the facts. The use we make of the facts is an intellectual process. We start with different qualities of grey matter and have to remember that experience is fallacious and judgment difficult and that it is not always possible to be right.

Then it is well for us to keep in mind that we have no business to use the facts to try and arrive at a judgment until we have all the possible facts gathered. Here is one point in which we often fail—we jump at conclusions before we have all the evidence.

May I say a few words about history-taking? You may reply there is nothing new to say about that and I grant you there is not much new to say about it but I would like to emphasize the importance of method. It is nearly thirty-eight years since I graduated and I felt yesterday in taking a history that it was just as important to carry out a thorough method as I did when I took my first history as an intern. The man who regards himself as superior to method is very often going to make mistakes because he so regards himself.

There are just a few points I should like to emphasize: the importance of having a very definite routine and of leaving nothing to chance; the importance of recognizing that no two humans are alike, and that while we have a routine we must adjust our process of obtaining the facts for the patient. That seems self-evident but we often forget it. Next, the man who uses a printed form for his history-taking is handicapping himself. I grant you that probably certain things are always asked as a result of that but almost as certainly certain other things are missed, and I have yet to see what I would regard as an ideal history taken on a printed form. That man takes the best history who starts with a printed form which has only the name, address, age and occupation and adjusts the rest of it to the patient.

The next thing is not to be content before we have gone to the end and here I think is very often the difference between a first-class diagnostician and a second-class one. The latter does not follow things out to the end, and in that connection I very often think of the story, undoubtedly familiar to many of you, regarding a damage suit in which there had been a collision after dark on a railway crossing between a motor car and a train. A very important witness was the watchman at the crossing who swore that he had waved his lantern very vigorously against the oncoming car but the occupants paid no attention. He was very severely cross-examined but the lawyer could not shake him at all. He swore that he had waved his lantern, waved it a number of times, and no attention was paid to it. And the verdict was given, largely upon his evidence, to the railroad company. Afterwards the superintendent came to him and said, "Jim, we are very much indebted to you for your evidence. I was afraid that lawyer might tangle you up but he didn't do so at all."

Jim scratched his head and said, "Yes, I am glad I did all right, sir, but you know I was terribly afraid all the time he was going to ask me if that lantern was lighted." (Laughter)

The lawyer lost his case because he did not follow the thing out and I think we very often fail because we stop before we have got to the end of the history.

I grant you that it is very difficult to listen to much rambling talk and there are a great many words in the answers that are unnecessary. I may tell another tale which many of you have heard.

If you will listen patiently you often get pointers. I remember one patient who presented a very puzzling problem and no one had any idea what was wrong with the man. He had a very talkative wife. There are such persons in the world. (Laughter) She insisted on coming in with him. As a rule it is best to take a history with no one but the patient present. But she said she would not talk so I told her she could come in under those conditions, but she did not keep to them. However, she let drop one remark, laughing at her husband, that gave me a clue to the diagnosis. She said he could never sleep with his feet covered with the bedclothing and that his had to be turned up from the foot just as they were turned down from the head. There was the clue to the diagnosis, which was gout. I do not mean that the diagnosis was made on that fact alone but it set in train a series of inquiries which gave us the diagnosis. I am frank to say I never would have made it unless his wife had chanced to make that remark. It never would have occurred to me to ask if he slept with his feet uncovered.

You may say, often, in regard to history-taking, that you have known your patient for ten, fifteen, or twenty years. You know all about him. Well, perhaps you do, but unless you have it written down you will forget a good many things. I do not know of anything more embarrassing to a consultant in asking a patient questions in a consultation (and remember there are a certain number of physicians who always resent the consultant doing that; I could never understand it, but there are a certain number who do) than to extract some facts from the patient and have the doctor say rather angrily, "You never told me that!" Of course, the natural answer is, "You never asked me."

With regard to the collection of facts, here is where each one of us can develop his powers and should develop his powers with every day he practices medicine. I should like to put in a plea for the better use of our eyes. Every teacher knows that the most difficult thing he has to do is to train his students to see, to inspect properly. We spend more time on that than on everything else put together, and it runs all the way through medicine. Very few of us use our eyes as well as we might. The more of the world's leading diagnosticians that I have seen, the more I have been impressed by the fact that they owe a great deal of their success to their powers of inspection. It used to be said of Sir William Osler that he could make a diagnosis at a glance and this always annoyed him. He did make a great many diagnoses from inspection, because he had developed that power to an unusual extent.

Then take the question of palpation, and particularly abdominal palpation. How many of us do that in the best manner? If you watch different men palpating an abdomen you must be impressed by the different ways in which they go about it. And remember that in this technique is more

than half the game. There is one thing I should like to plead for and that is gentleness. Whatever you do, do not be one of the "finger-pokers," that is, one of those individuals who keeps sticking the end of his fingers into the abdomen. Let someone do that to you a few times and see how it feels.

There is one little point in that connection. We may see a man examining an abdomen and the first thing he says to the patient is, "Draw up your knees." I think that is rather a confession that his technique is not as good as it ought to be. Sometimes it is necessary to ask a patient to draw up his knees, but in the great majority of cases it is quite unnecessary. You can usually make out just as much with the knees lying flat as you can with his knees drawn up if you know how.

There are different ways of eliciting information. Take, for example, the method of palpating the abdomen with the patient sitting up on a stool bending forward, with his arms and shoulders a little forward, absolutely relaxed, if possible, you standing behind and palpating the patient. Those of you who use that method know how frequently you can palpate much more satisfactorily than with the patient lying flat.

What about percussion? Every one of us should make sure that he percusses better with each day he practices, but we will do that only if we take thought and if we start with a good technique. Some men have a careless technique and can not bring out a good note because they do not percuss properly. It does not make any difference how good your ears are or how good brains you have if you are supplying them with poor sounds, and the technique of percussion often makes all the difference between a correct and an incorrect diagnosis.

What is the ordinary every-day condition that is most often overlooked? I think you will find that most consultants will give you the same answer: fluid in the pleural cavity. As a rule it is one of the simplest things to recognize if one simply examines carefully, and yet I suppose consultants find that it is not recognized more often than everything else put together.

Now with regard to the use of facts, and I might re-emphasize the importance of not jumping at conclusions, or not using the facts until you have them all. Firstly, I should like to mention that *physical* diagnosis is not *disease* diagnosis. There is a vast distinction between them, a point which we often forget.

I spoke regarding the question of the history. May I bring out one point here because it has to do to some extent with our mental processes? In history-taking you have an opportunity to study the patient, to study him or her as a human individual, to get at his peculiarities, to learn his habits of mind. I often think how careless we can be in that regard sometimes. Before we do a blood transfusion we are very careful to have the blood typed, and if a transfusion is done without that being performed previously we are apt to blame the man if any harm results. Do not forget that in your handling of a patient, your mentality and personality

influencing his are a great deal more important in the long run than the mere question of having the same type of blood when a transfusion is being done. In other words, what we are going to do for that patient will depend a great deal on how we have "sized him up."

When you come to the problem of using facts in a diagnosis, there are a great many different intellectual processes. The one you have to carry out in connection with one patient may be entirely different from that used with the next one, and the ability to choose, to see what is the best line to follow is a good deal of the art of diagnosis, the ability to pick the best method for that particular patient. It is evident that we have many groups. It may be some curious condition which we recognize only because we have seen it before, or perhaps have read a good description, but very few of us recognize conditions from descriptions. We do sometimes but not always. Take, for example, erysipelas. There are very few students who recognize erysipelas when seen for the first time. Erythema nodosum is another example. Until one has seen it once, it is very difficult to recognize it. Yet the student may be able to write a description from his reading. Take that curious condition in the mouth called torus palatinus. Until one has had his attention directed to it and knows what it is, it is probably impossible to diagnose it.

Then it may be a question of the knowledge of the whole disease picture. Take, for instance, subacute bacterial endocarditis which at one time we did not recognize and which today as a rule is exceedingly easy to recognize because it is more or less a well drawn picture that runs fairly true to form. There are cases in which it is largely a matter of the estimation of physical signs, and this applies particularly to thoracic disease, and here it is needless to emphasize how important it is to have accurate facts in the form of carefully observed physical signs.

May I say, with regard to thoracic diagnosis, that in this if one is going to improve himself he must stick to the rule that he will do everything to diagnose a thoracic condition by his own senses and brains before he turns to other methods, for instance the X-ray. And yet how often that is forgotten! It is so easy to say, "Oh, let us get an X-ray and see what it shows." I feel that if a man has to have an X-ray to recognize fluid in the pleura, he ought to feel it somewhat of a disgrace. In certain cases we know perfectly well that nothing but the X-ray will give us a diagnosis, as in new growth, but we should not turn to it until we have used our own powers.

Then sometimes it is a question of balancing probabilities, as, for instance, in upper abdominal diagnosis. We know how difficult that is. Then we must recognize that in some cases diagnosis is impossible, and it is a humbling thing to keep that in mind.

I should like to conclude by giving a few points. In a doubtful case it is often a good plan to start in *de novo*, to begin again and take a fresh history, as if you had never seen the patient before. It is often an aid to sit down and look at the patient. There should be nobody else there

but yourself, or, if anybody else is there, have them keep quiet. Particularly in thoracic conditions look at the patient for ten minutes and see what you get out of it. It is surprising what suggestions come into one's mind often by doing that and how often one picks up some point that he has missed.

There are certain things to avoid—I am not going to dwell on them, just give them to you. There is the premature jumping at conclusions. Try to go to completeness in every case. Do not be content with what is on the surface only. Be suspicious of the obvious. Do not forget that we are handling a human being and there is much more to him than mere anatomy; there is a personality and it is our business to try to study that just as well as the physical signs of the patient.

In chronic cases, it is a good idea to review the whole situation from the beginning. Try and avoid names which mean nothing. There are a good many of them which occur to us all—"rheumatism," "intestinal flu," etc. Lastly, do not be afraid to review and carefully study your own mistakes.

CHAIRMAN MCCRACKEN: I think the audience has expressed its appreciation to you.

We are not going to complete this program as it is laid down in the program for this morning. We are going to adjourn after the next speaker. The two remaining papers will be carried over until Wednesday morning general session, which will not be so crowded. So let us be patient just a few minutes and hear the next speaker and then we will adjourn for lunch.

Next is an address by Dr. G. Fred Hale, a dentist of Raleigh. His subject is "Some Problems of Etiology in Orthodontia." Please give attention to Dr. Hale.

SOME PROBLEMS OF ETIOLOGY IN ORTHODONTIA

By G. FRED HALE, D.D.S., Raleigh, N. C.

Even the best would feel embarrassed by following a man as eminent in the field of medicine as Dr. McCrae; how then must such an amateur as myself suffer in a like situation. I am encouraged by the knowledge that one's efforts, when directed with sincerity of purpose, are tolerated sympathetically. Then, too, I am further made to feel more comfortable by appearing before a body, among many of whom I have had a most pleasant professional relationship in a problem of common interest.

Before we go into the discussion of the etiology of malocclusion and irregularities of the teeth, let me make my position clear by saying that there is much not definitely known of the etiology of such deformities. True, we associate with it certain conditions, but that is about as far as we have gotten. We have evidence to support certain opinions, but absolute knowledge is often lacking. We recognize the effect without always knowing the cause and begin a difficult treatment under a handicap.

For classification let us divide the dento-facial deformities into three main divisions:

1st: Where the antero-posterior relationship of the jaws are correct, but there is a narrowing of the arches and crowding of the anterior teeth.

2nd: Where there is a posterior relation of the lower jaw to the upper and a protrusion of the upper anterior teeth.

3rd: Where there is an anterior relationship of the lower jaw to the upper, thereby producing prognathism.

If there are those of you who entertain the idea that all dento-facial deformities are the result of purely local causes, will you please permit me to undertake to relieve your mind of such an attitude? There are certain types of malocclusion which we believe to be the result of pernicious habits and other local influences, but these are only a part of the picture,—such causes will fail to be of much concern to you, but the broader etiological factors will court your interest and stir your imagination.

We believe, from the light of recent research problems and long clinical observation, that etiology of malocclusion and irregularities of the teeth must be solved along broad biological lines. Quoting from H. S. Jennings, "The development of an individual is brought about by the interaction of a great number of separable substances, existing as minute particles, their interaction with each other, with other parts of the cell and with material taken from the outside. Something is known of the result of altering only a single one of the thousand different substances present in the original cell and by altering several or many. Some combinations of them give imperfect individuals, feebleminded, deformed, monstrous; others give normal individuals; others superior individuals; there are combinations giving every intermediate type." Unless our concept is broad enough to grasp the significance of this statement, we will continue to look upon the mouth as a part separate and distinct from the whole, and subject to different laws of growth and demanding different ideals of treatment. Whatever is done in the mouth, whether surgery, restorations or orthopedic correction of dento-facial deformities, our mind must be saturated with the knowledge that we are dealing with a biological and physiological part of a biological and physiological whole, subject to the same general laws of growth plus environmental influences found nowhere else in the body.

A few years ago Prof. M. C. Brash, eminent anatomist at the University of Edinburgh, made a thorough survey of orthodontic literature, upon invitation of the orthodontic profession of Great Britain. He said "from the evidence so far submitted, far too much importance has been placed on such etiological factors as thumb sucking, nasal obstructions, adenoids, cusp relation and other strictly local factors."

Learned men have joined their clinical observations with research experiences in the last few years and we are beginning to see through some of the fog that obscured our vision. Drs. Stockard and Johnson are working on problems of genetics at Cornell University. Drs. Gregory and Hellman are working on problems of growth of the bones of the face and skull at the American Museum of Natural History; Dr. C. C. Howard and a group of physicians at the Good Samaritan Endocrine Clinic in Atlanta, are working on endocrine problems and T. Wingate Todd, F.R.C.S., is working on growth problems at Western Reserve University. Time does not permit the detail elaboration of the work done by various groups throughout the country.

Coming a little nearer to the subject which the title of this paper requires that I discuss, we will divide the etiology of malocclusion and irregularities of the teeth into two main divisions,—local and general.

Under local etiological factors, we will tabulate the following:

1. Pernicious habits, which play their harmful role so slowly and treacherously that the effects are not noticed by the parents until considerable damage has been done. Finger sucking, lip sucking, and tongue habits are the most common of these dangerous habits.

2. Nasal Obstructions: Produces mouth breathers which interferes with normal muscular function, which in turn interferes with normal growth. Some one said "function determines form" which statement I believe to be only partially true, otherwise we could produce about whatever physical type of man desired. All generalities have to be met with modification. Adenoids, the chief offender in children, produces the typical "pinch face" expression, upper anterior teeth protruding, lower anterior teeth retruding, producing that receding chin or "Andy Gump" type of individual. As the mouth breathing proceeds we believe the hard palate increases in heighth, thereby producing change in the nares and neighboring structures. The rhinologist and orthodontist here have a problem in common, demanding sympathetic cooperation if either is to be successful in treatment.

3. Deciduous teeth: Baby teeth should have the most careful attention. The early loss of deciduous teeth nearly always induces a disharmony in oral growth. Teeth drift to approximate each other in the same arch, and this means the impaction of permanent teeth. The oftime sequalæ to impacted teeth is too well known to you to elaborate upon here.

4. Permanent teeth: The retention of permanent teeth is of the utmost importance if one's occlusion is to be maintained and the health of the mouth preserved. The loss of one permanent tooth usually immediately jeopardizes the usefulness and life of five other permanent teeth in the immediate vicinity. The care with which the contour of a tooth is restored, when once a cavity appears, has much to do with the future occlusion, usefulness and health of the mouth.

Under general etiological factors we will tabulate the following:

1. Syphillis: There is not only a very definite and typical malocclusion and jaw deformity noted in congenital syphillis, but there is also a typical type of tooth produced.

2. Malnutrition: Where skeletal development did not reach its full possibilities, there is often created a disharmony between the size of the teeth and the supporting bone, producing thereby a malocclusion of the teeth.

3. Endocrines: As these glands influence the general skeletal growth, so do they also influence the growth of the jaws. The clinical pictures of these patients come vividly before your eyes, especially cretinism, progeria and acromegaly. As there is a modified or distorted skeletal growth in these people, so there is also deviations from the normal in jaw growth and conformation.

4. Rickets: Mellanby of England and Howe of Boston demonstrated malformed jaws and irregular teeth in experimental animals by producing rickets. Hatfield of Boston examined about 500 children giving a history of rickets, and found no greater prevalence of malocclusion than from a large group with negative history of rickets. One can see, however, that the teeth and their supporting structures could enter into the clinical picture.

5. Genetics: Within the last few years there has been sufficient research in experimental animals, coupled with clinical observations, to force the opinion that inheritance plays a large role in producing irregularities and malocclusion of the teeth. Whether we inherit small supporting bone and large teeth, or conversely, per se, or whether we inherit a certain endocrine balance or imbalance, which in turn produces certain disharmonies, we are not sure. Drs. Stockard and Johnson at the Cornell Experimental Farm have produced from very small to very great dento-facial anomalies in interbreeding dogs. This work will be published very shortly.

These are briefly what we believe to be some of the etiological factors in producing dento-facial disharmonies. Not until we look critically at all the possibilities and consider the mouth and its neighboring structures as vitally correlated with the problems which affect the whole, can we hope to be rewarded with any degree of satisfaction which comes from a service well done. We might be happier if we embraced the suspicion that whatever affects the health and happiness of the growing child, might also affect the teeth, the supporting and neighboring structures, which in turn might vitally affect the health and happiness of the adult.

I have not so much intended to push in the background of the picture the local causative factors, as I have hoped to remind you of those whose origin were intrinsic, harmonic or pathological. It seems to me that we must pay respect to all the possible influences operating to produce an

imperfect individual, and not lose our heads over one possible link of evidence.

Through the process of trial and error, through unnumbered years, we have arrived at certain types of teeth and certain types of supporting structure in the human family to meet certain requirements for masticating, for enunciating and for esthetics; any modification reduces the efficiency accordingly, and leaves in its wake a physic, physical or pathological impress that flows on into later life.

Slides:

1. Types of malocclusion
2. Local causes of malocclusion
3. General causes of malocclusion
4. Treated cases.

I make no claim for originality of thought in this presentation,—the literature is fertile in support of these opinions, and my clinical observations are, I should say, the average of an orthodontic practitioner. I am not presumptuous enough to think that this paper has added one bit of knowledge to your profession, whose literature is studded with beautiful gems from your leading thought. I do hope, however, that interest has been stimulated in a subject that is as much your concern as it is our problem. If we, in mutual co-operation, do not handle these children, they are most likely to be potential patients of the psychiatrist and internist. You who have so wonderfully labored in eradicating contagious diseases, I hope will now turn some of your talents to a less spectacular, but none-the-less much needed drive to eradicate diseases of mouth origin. May those of us who are particularly interested in orthodontics feel that a finer concept is to relieve inhibitions and prevent disease rather than to undertake to straighten crooked teeth. We must project our vision far beyond the condition of the moment,—to the adult at 25 or 30, and present him to the world with as little physical and mental handicap as humanly possible.

I thank you very much for the opportunity of appearing before you.

. . . Announcements were made at this point . . .

. . . The meeting adjourned at one-ten o'clock, P. M. . . .

SECOND GENERAL SESSION

Tuesday, April 18, 1933

Dedication of the Clarence A. Shore State Laboratory of Hygiene Building, by the Medical Society of the State of North Carolina was held on Tuesday afternoon, April 18, 1933, at 5:30 P. M., at the Building, Jefferson Street, just off Glenwood Avenue, Raleigh, North Carolina. Dr. John B. Wright, President of the Medical Society, presided.

Chairman Wright: Friends, we have gathered here this afternoon to pay homage and respect to one of our sons, whose life was such that

we will always remember the service that he rendered. His was a life of devotion and service to the relief of humanity.

We will have the exercises opened by an invocation, by the Rev. Howard E. Rondthaler, of Winston-Salem.

Rev. Howard E. Rondthaler: Our Heavenly Father, Thy mercies are new every morning. Great is Thy faithfulness. We come together in this hour to acknowledge Thee, Thy presence in the affairs of men, the shelter and kindness and loving protection of Thy hand; Thy knowledge in the plans of life is far beyond any knowledge which we ourselves possess, and Thy love which does not err, and Thy understanding of our need, which is even the understanding of a Father concerning His own children.

We ask Thee that as we do honor to a beloved friend, that as we pay tribute to a companion of a life-time, that as we remember with tenderness the experiences of fellowship from childhood on through the many years thereafter, that as we do reverence to a distinguished career and a heart filled full of service and a life of energy, that Thy presence may attend us and Thy benediction may rest upon us. Help us to be impressed in this hour with the spirit of service of him who lives in his labors. Help us to be impressed with the certain belief as Christians that we are possessors of immortal life; that Thy plans above our plans do not interrupt our immortality, that Thy thought of love concerning us does not break off life itself, though it may modify our own definite intentions and plans.

So help us, not with blind resignation, but with devout and devoted love, and with a sense of uninterrupted fellowship, to worship in this hour and to rejoice in what this hour shall contain for us and others.

May Thy mercy minister to those who most experience the intimacy of this separation. May Thy grace and courage lay hold anew upon our hearts, through all the reminiscent power and through all the admiration which we entertain for Thy servant, our brother.

So bless us as we worship, comfort us as we remember, and inspire us as we think along the path forward in the fellowship of Jesus Christ our Lord and Savior. Amen.

. . . Music by a Quartet, accompanied by a harpist, entitled "God of our Fathers, Whose Almighty Hand" . . .

Chairman Wright: I present to you now the President of the State Board of Health, a man who is always ready to lay down personal desires and personal obligations in the cause of service in the health of his State—Dr. John T. Burrus. (Applause)

Dr. John T. Burrus: Mr. Chairman, Ladies and Gentlemen: Probably no word that I could say, or no word that anyone else could say, would tell to any one of you here anything more than you know of Dr. Shore. He was my friend, the friend of the medical profession of the State, the friend of the people of North Carolina; a man who, probably, in his line of work had no peer and no superior; a man who dedicated and

devoted untiringly and unflinchingly his life in service to this scientific branch of medicine—this service for the citizens of North Carolina.

A laboratory is one of two things. There is no middle ground. It is either the safest thing, and one of the finest things, and one of the most helpful things that the profession, that the State, can perfect; or, it is one of the most dangerous things that can exist. We in North Carolina were very fortunate in having at the head of our Laboratory a man who placed North Carolina's State Laboratory at the head of the list; a man whom everybody loved, without desire for special favors, without desire for publicity or notoriety. Because of this, and because of what he has given to this State, and because of the love that the medical profession have had for Dr. Shore, the finest evidence that a legislative body could give was that evidence of naming this Building for him.

Therefore, it is appropriate, it is in place, that the Governor of this great State should consent to come here to pay this tribute to one of North Carolina's great sons. It gives me pleasure now to introduce or to present to you your beloved Governor Ehringhaus, who will now address you. (Applause)

Governor J. C. B. Ehringhaus: Ladies and Gentlemen, I assure you that I count it a very distinct and high privilege to be permitted to share in a small degree in these exercises. I think that when a people lose their capacity or their disposition to honor one who has achieved largely in behalf of the day in which he lives, they will have lost one of the great things that enable them gradually to build up a better and ever better civilization.

It is not an unusual thing, it is not a thing to be remarked upon, that official sanction should be given to such occasions as this. It is quite, it seems to me, in keeping with the high appreciation of North Carolinians for a high degree of service by an eminent and beloved citizen who has passed on.

When I was asked to speak on this occasion, no definite subject was suggested to me, but when the program was handed me, I found that I was to direct my remarks particularly to the value of a Laboratory to the State of North Carolina.

Now to any such query as that, to any real consideration of such a question, there occurs immediately the possibility of two answers—one objective and the other subjective. I am quite sure that those who did me the honor to suggest my participation on this occasion had no thought or desire that I, a layman, should endeavor to talk to you today on the objective side of this subject. For what can I know and what appraisal can I make of the value of test tubes and Bunsen burners and the infinite variety of apparatus that go to make up the physical structure of a laboratory?

And so, immediately, I came to the conclusion that it was entirely in tune with my own desires and inclinations, that I should address the few brief remarks which I shall submit, to the other side of that question.

I could interpret the value of a laboratory in many ways but I prefer to interpret it in terms of its service to the State.

One cannot interpret it in those terms without thinking of it, as we must so many activities in life, as being but the lengthened shadow of the man who presides over it. For, when all is said and done, the State may provide according to the utmost requests that may be made for financial assistance in connection with such labors. And those charged with the spending of such provision may give infinite consideration and the utmost of care to the provision of laboratories, apparatus, instruments and all the physical tools for such an adventure, that may possibly be given. But when it has all been done, when the utmost of labor and effort has been put into the provision of opportunity for work, unless there is put at the head of such an activity a man who in character and capacity and in spiritual attainments as well as the inclination and the urge, as well as the ability, to translate the effort that can here take place, into terms of actual service to his fellows, all will have been wasted.

When we come to think about what is necessary in order to have the right sort of service in an institution of this character, we think in terms of human characteristics. A laboratory must personify the man, and the man must in his own character make up and give earnestly of his capacity to make good in the enterprise which he undertakes.

There comes to mind immediately the outstanding qualities of heart and mind that were possessed by the man who today we honor; that, above all things, give us the proof of his capacity to do the work to which he was called, and that show the wisdom of his selection for that service.

No laboratory can function, however equipped, however named, unless the staff is possessed of an infinite capacity for labor, for hard, tedious, tiresome labor—the labor that watches, the labor that exerts itself, the labor that concerns itself with the smallest and the most trivial things, to the end that nothing may be lacking, and that the sum total of effort may be translated into knowledge and service.

And then, it seems to me that a properly functioning laboratory must have in its staff or in its dominating spirit an unusual genius for thoroughness and for meticulous accuracy. For science has made the progress which it has achieved, and the men of your profession have gained the eminence which is theirs, largely because of the capacity of such men as he, to translate their inborn genius into a chronicle of meticulously accurate data and information upon which things for the betterment of the race might be predicated.

Then next, it seems to me that the laboratory which is designed or is able to serve the State truly must in its working staff and presiding genius be actuated by an exalted sincerity—a sincerity not simply of effort, but a sincerity of purpose and a sincerity that will enable it, after searching out the truth, to acknowledge that truth and then utilize it. The great inquiry has come to us with new meaning through the centuries,

as to what is truth. And what is truth is a question that may be properly applied to many studies of mankind. There is no effort of study in which the necessity for a sincere search after and recognition of the truth is quite so essential as in the highly scientific endeavor of men of your profession who are called upon to do work of this character.

Then lastly, to the end that this sort of capacity, this sort of genius, this sort of sincerity, may be translated into terms of real service. It seems to me that the dominating characteristic of the man who is at the head of such an undertaking must be a sort of modesty that is willing at all times to efface itself, in an effort to give the best possible service to the cause that he undertakes. Without that characteristic, without that capacity, every effort will lack the fullest possibility of realization or attainment.

When we have considered these things, when we have thought upon these four general suggestions, does there not come to the mind of each and every one of us gathered here today the thought that no man ever lived and labored in North Carolina who possessed to a more marked degree these outstanding qualifications—an infinite capacity for work; a genius for thoroughness and accuracy in the results of his labors; and a love, a sincere love of the truth and a search for it, a willingness to recognize it, in the consciousness that in his work, as in all others, the truth would make men free; and lastly, a high degree of modesty that effaced self on all occasions, sought not his own preferment, sought rather to give to the utmost of his capacity for the benefit of his State and those for whom he labored—for all humanity.

So I come today not simply to perform an official function. I come not simply to give official sanction to this very worth while thing which is being done. I come not merely to add official approval to this recognition of high degree of capacity and service. I come to pay a tribute of affectionate regard and appreciation to a friend.

I was one of those who had the high privilege of walking the campus of my own Alma Mater in the days when he was there. We were classmates. We labored together in the diligent enterprise that then was required of us. He gave to his efforts and to his campus activities in those days the same high intelligence, the same consecrated service, the same manifestation of sincerity, the same sweet modesty, that he gave to every labor in life. No man on the campus in his student days but recognized that in Clarence Shore there was every element of a man. No citizen of North Carolina, no man or member of your profession, but has known and recognized for a long time that here was a man among men.

We honor him for the work that he performed. We honor him for the way in which he performed it. We honor him for having given us an example of the right sort of public service, which labors and loves and sacrifices without hope of an adequate reward or return. And we love him not simply for the example that he has set us, not simply for the magnificent way in which he has done the work which it pleased God to call him

to perform. We love him for his fine qualities of manhood, for his sweet friendship, for the inspiration that comes to us in the recollection of a righteous servant of the living God and a man above reproach—a public servant whose service has not been excelled.

Thank you. (Applause)

. . . Singing of the hymn, "Crossing the Bar," by the quartet, accompanied by the harpist . . .

CHAIRMAN WRIGHT: Dr. Shore and Science—Medical men who have made a success in their high calling or profession have done so by being able to make a correct diagnosis. When we look back over the wonderful success and the great achievement that our departed member has left behind him, and as we go farther and farther back, we realize that for him to have made this great success, somebody else must have had a part in it—that he was trained. The gifts that were his by inheritance from a long line of noble sires were a foundation on which this could be built. But we realize that for the achievement of a useful life in science, that this mind had to be trained. And before we hear from the man who had more to do with that than any other one man, I want to say personally that I received inspiration myself at the feet of this noble teacher, who will now say something on "Dr. Shore and Science"—Dr. H. V. Wilson of Chapel Hill. (Applause)

CLARENCE A. SHORE AND HIS EARLIER YEARS IN SCIENCE

H. V. WILSON, Ph.D., Chapel Hill

As I understand the Committee's invitation, it is to talk about the early days of Dr. Shore as a young scientist. We were so intimately associated for a number of years that this is for me an easy and pleasant task, calling up as it does many fine memories of one who came quickly to be known at the University as a student of great promise.

Clarence Shore entered the University in 1897, already a mature young man with a real interest in biology and medicine. During his college years he was in a number of my classes. Old roll books have a good deal of interest and on referring to mine, I find that his work is recorded as very good, whether this mark was given for industry, skill, and initiative in the daily laboratory exercises, or after a special practical examination in which teacher and individual student converse concerning the body, macroscopic or microscopic, before them, or for a written paper calling for intelligible descriptive accounts of structures and processes that have some little complexity. As I remember, Shore entered into all special tests in the right way, as opportunities given the student to ascertain what strength he has along certain lines. He was even then in good control of his powers, quiet and properly assured, and without the nervous tension that is sometimes found in the very best of students, rich in accomplishment during later years but who, on examination, especially if practical and oral, do not reveal their true power. As fellow students

of Dr. Shore in my classes at that time were others who have distinguished themselves, my old books tell me that none did better work than Clarence Shore.

In his last year or two of college Shore was a laboratory assistant with me. The duties of a laboratory assistant in Biology are various. They reveal the character of the man, especially as to reliability and enterprise. Shore now had to aid in the collecting and culturing of protozoa, hydras, flat-worms and other low forms found in our fresh-water pools. He had to become interested, and was so, in discovering good places where hundreds of sizable earthworms could be dug, large crawfish and minute crustacea, in the vernacular, water fleas, could be found. The habitats of snails and fresh water mussels had to be learned, live insects and their larvae collected, frog and salamander eggs brought in and reared. After graduation from college (B.S. 1901), during his three years service as instructor (M.S. 1902), such duties remained and others were added. He became very familiar with the members of the local fauna which have any considerable interest. We still have on the laboratory shelves records of his activity in those pleasant years. Only a few days ago I had occasion to pick up a bottle, the label in his clear, bold, round hand reading: "May-flies transformed in laboratory March 1901, from larvae collected in Bowlin's Creek." Looking again at this bottle for the record I noted on a neighboring shelf a vial of his containing fresh water mussel eggs, taken in May of the same year. This varied work in natural history, collecting, keeping, and rearing all sorts of animals, revealing, as it does, how many things go to make up our world and how close and intricate are the bonds that bind all living bodies together in a web of life, using Arthur Thomson's phrase, this work was surely a strong factor in leading Shore into the field of research and application in which he made so fine a name for himself later on.

Enterprise, a good eye, some familiarity with the out-of-doors that lies between the highways, and a bit of the patient experimental care that keeps babies alive and rears chicks and rabbitts to a market size, these qualities, as well as others, are demanded by the work I have sketched. All together they make for a habit of alert observation.

As natural history hardens and deepens into biology, we begin to look through the infinite diversity of living nature and to search for what is general. Comparison and experiment soon lead many of us, though by no means all, to internal anatomy, to organs, tissues, and cells. We are observers as before, but now are content to limit the field, to spend long periods of time on details of structure and protoplasmic behavior. This tends to develop a meticulous accuracy that is good for the human mind, whatever enterprise it may later undertake. As a demonstrator Shore developed this power. In dissection and study with the microscope he pushed the inquiry home, looking for and finding the ulterior facts. This is demanded in teaching and Shore was a good teacher. We still have and use annually some dissected beef hearts which he prepared more than

thirty years ago for the demonstration of the valves, tendinous cords, papillary muscles, the coronary vessels and roots of the others. He was not content to talk about a body. He wanted to see and show it. A classic task in an elementary biology class is to excise the living kidney of an earthworm, to see it more or less whole under the microscope, and to observe the wonderful action of the cilia sweeping a current down the tube. In this as in other such instances Shore, like a good leader, would first make sure that he himself could perform the operation, after which he demanded that the members of his class succeed in it. People always, young and old, respected and liked him, and when he demanded, his demand was met. He became also an excellent histologist. We still have many serviceable preparations of his in the laboratory, preparations of brain and spinal cord cells, gland and muscle, chromosomes of satisfying size in salamander epidermis, rods and cones of the salamander eye big enough to meet the demands of the college student.

One of the most beautiful institutions in North Carolina, the marine biological laboratory of the U. S. Bureau of Fisheries at Beaufort, began its life in the summer of 1899, largely because of the tireless creative energy of Professor J. A. Holmes, then director of our state geological survey. Commissioner Bowers was prevailed on to establish that summer a temporary station, which by act of Congress was made permanent two years later. Some of us knew Beaufort quite well before 1899, but the establishment of a well equipped laboratory there made possible much investigation that had been impossible before. The faculty and graduate students in biology at the University have annually from the start used this admirable station for the prosecution of investigations alike helpful to the fisheries and of value in abstract science. Shore spent many summers there during the earlier years, coming at first from our department of Biology but continuing his work later in his vacations as a medical student. During several years his studies were especially in the field of comparative embryology, more particularly in the investigation of cell behavior in developing eggs and embryos of fishes, echinoderms and worms. I asked him years afterwards here in Raleigh whether he had quite lost interest in that sort of study. He assured me that he had not and that in some indirect way his early experiences with changing embryonic cells continued to bring him ideas in his work with infectious organisms. This is not to be wondered at, for the study of disease is surely at bottom the study of the behavior of protoplasmic masses struggling for their life against adverse conditions, whether these be physico-chemical and induced by infectious organisms or of some other nature and origin.

Shore, however, doubtless already inclining in imagination to the work which he was eventually to take up, drew away from cellular embryology and began to cultivate acquaintance with the crustacea of Beaufort, discovering what species were present in that region and describing hitherto unknown ones, their habits and local distribution, breeding times, external anatomy and habits of the hatched larvae, metamorphosis of

the larvae as they gradually assume the adult shape. No data concerning animals and plants are more intimately connected with the problems of the fisheries or, on another side, with those of public health than such matters. This work continued through several summers. Shore scoured the harbor, dredging, digging, wading about at low tide, and collecting smaller forms at the surface of the water with a tow net dragged behind a boat. Drawing, photographing, measuring, and searching the literature for descriptions of the forms he collected, kept him occupied long days in the laboratory. Those were busy summers.

This work on the Beaufort crustacea became so extensive, in Shore's resolve to cover the field well, that it prolonged itself into his next phase, that of one directly concerned with public health problems. And these problems were so engrossing that the work on crustacea had to be laid aside. Fortunately, Dr. W. P. Hay of Washington, one of the investigators at the laboratory, was willing to take it up and get the report ready for publication. As completed, this paper on the "Decapod Crustaceans of Beaufort, N. C., and the Surrounding Region" appeared under the dual authorship of Hay and Shore. It includes precise descriptions of, and many data concerning, 153 species with a photograph of each species. Of all the memoirs dealing with our coastal fauna, this is the one which, I am sure, is most frequently consulted. A fine piece of work.

Clarence Shore would have made an admirable professor of biology and I deeply regretted his decision to abandon this career. He told me, however, that he had finally come to see that abstract, so-called pure, science did not call out his best powers. He wanted to be closer to people's present needs, to be engaged in enterprises, other than teaching, that were directly useful, useful here and now. This ambition he fully realized. And yet while he preferred the noble career of direct help into which he passed, he remained, as I know, well aware of the close and creative connection between abstract science and the science, which, like his, distributes benefits of such a kind that all can perceive them.

. . . Music by a harpist and violinist, as the Tablet on the Building was unveiled at this time, by George Williams Worth of Raleigh . . .

A JOINT RESOLUTION DESIGNATING THE STATE LABORATORY OF HYGIENE BUILDING AS "THE CLARENCE A. SHORE STATE LABORATORY OF HYGIENE BUILDING"

WHEREAS, Dr. Clarence A. Shore, Director State Laboratory of Hygiene, departed this life on the 10th day of February, 1933, after more than twenty-five years of service as Director of the State Laboratory of Hygiene; and

WHEREAS, by his love and service to the commonwealth, he succeeded by his own personal efforts and diligent attention to duty in making the State Laboratory of Hygiene one of the four outstanding laboratories of hygiene in his country; and

WHEREAS, Dr. Clarence A. Shore was at the time of his death, President of the Tri-State Medical Association of the Carolinas and Virginia; and

WHEREAS, his reputation as a cultured scientist and his patriotic services to the State in the eradication of typhoid fever and the prevention of death by hydrophobia was nation wide and set an example emulated by other States in the Union:

NOW THEREFORE, as a fitting tribute and memorial to the notable life work of this outstanding public servant who laid down his life that North Carolina might live and live more abundantly;

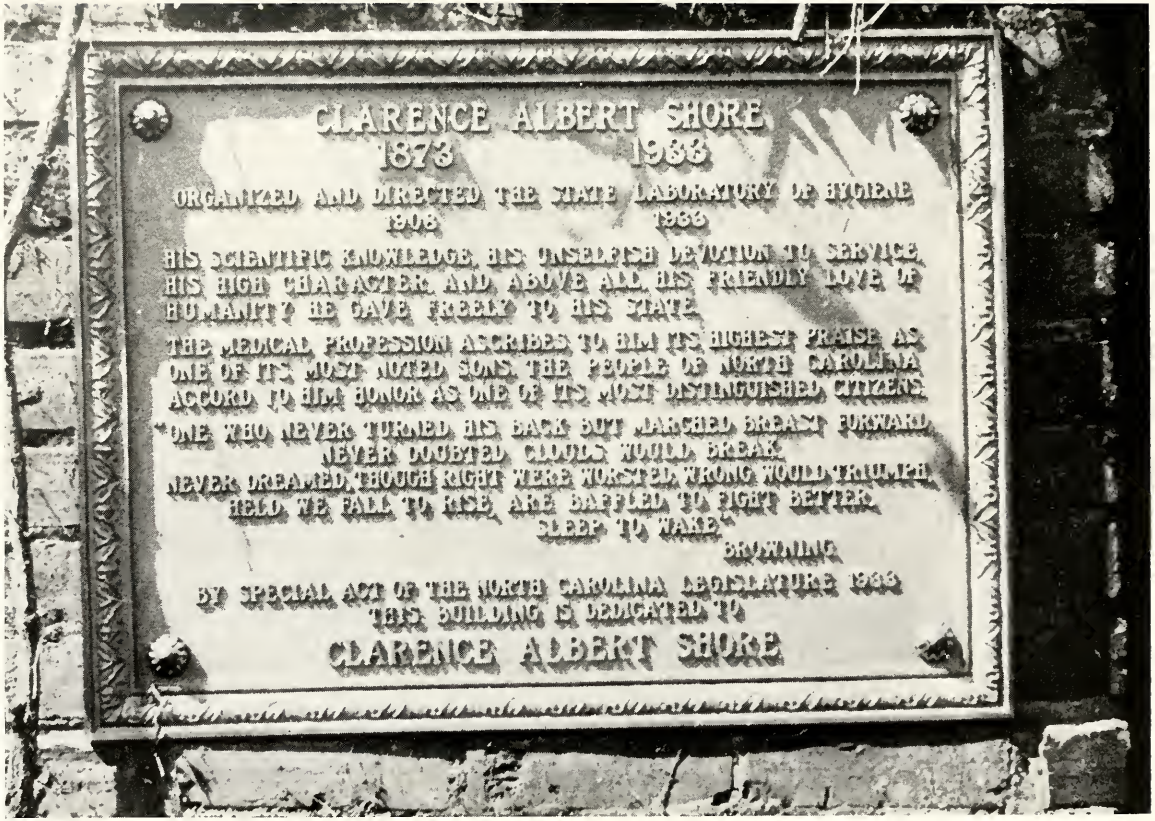
BE IT RESOLVED by the House of Representatives, the Senate concurring:

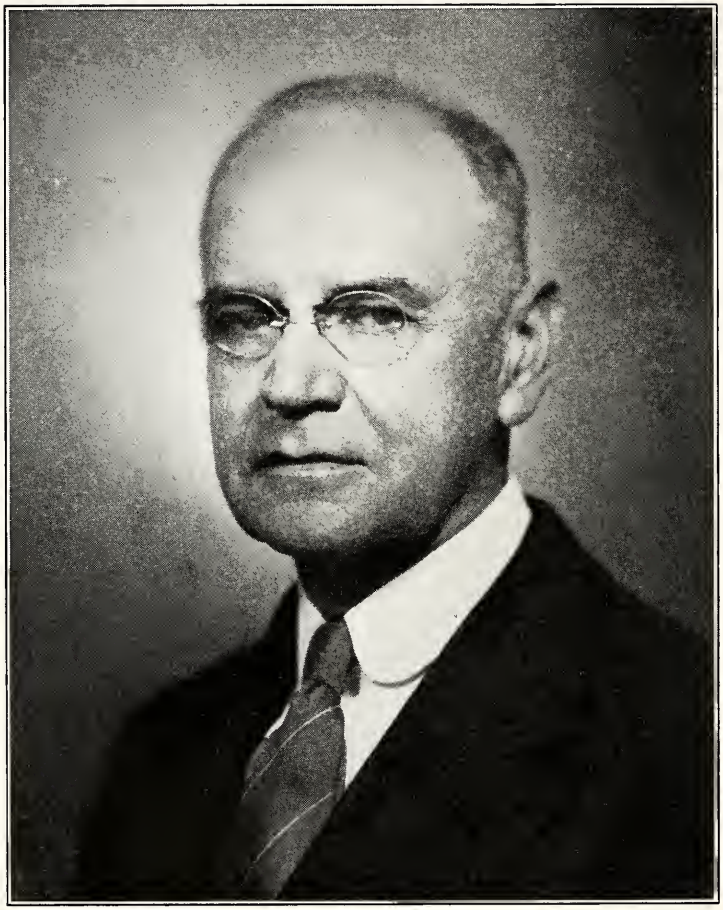
Section 1. That the building now used and occupied by the State as the State Laboratory of Hygiene in the City of Raleigh, together with any and all extensions or additions thereto, be and the same is to be hereafter known and designated as "The Clarence A. Shore State Laboratory of Hygiene Building."

Section 2. This resolution shall be in force and effect from and after its ratification.

In the General Assembly, read three times, and ratified, this 23d day of February, 1933.

This Joint Resolution was presented by Senators Hayden Clement and Doctor T. W. M. Long. It is the only instance in the recorded history of North Carolina that such honor has been awarded a physician by the State Legislature.


CLARENCE ALBERT SHORE
1873 1936
ORGANIZED AND DIRECTED THE STATE LABORATORY OF HYGIENE
1908 1936
HIS SCIENTIFIC KNOWLEDGE, HIS UNSELFISH DEVOTION TO SERVICE,
HIS HIGH CHARACTER, AND ABOVE ALL HIS FRIENDLY LOVE OF
HUMANITY HE GAVE FREELY TO HIS STATE.
THE MEDICAL PROFESSION ASCRIBES TO HIM ITS HIGHEST PRAISE AS
ONE OF ITS MOST NOTED SONS. THE PEOPLE OF NORTH CAROLINA
ACCORD TO HIM HONOR AS ONE OF ITS MOST DISTINGUISHED CITIZENS.
"ONE WHO NEVER TURNED HIS BACK BUT MARCHED BREAST FORWARD,
NEVER DOUBTED CLOUDS WOULD BREAK,
NEVER DREAMED, THOUGH RIGHT WERE WORSTED, WRONG WOULD TRIUMPH,
HELD WE FALL TO RISE, ARE BAFFLED TO FIGHT BETTER,
SLEEP TO WAKE."
BROWNING
BY SPECIAL ACT OF THE NORTH CAROLINA LEGISLATURE 1939
THIS BUILDING IS DEDICATED TO
CLARENCE ALBERT SHORE



DR. CLARENCE A. SHORE

CHAIRMAN WRIGHT: The concluding number on this program, "Dr. Clarence A. Shore", is by a man who worked with him intimately. He started with him at the bottom and they were a wonderful team, and they have wrought great accomplishments in improving the health of our people and modestly lay them at the feet of North Carolina. Dr. G. M. Cooper (Applause)

DR. CLARENCE A. SHORE

By GEORGE M. COOPER, M.D.

One day early last November I was working on a revisal of the historical chapter for the Biennial Report of the State Board of Health. I was reminded in working on the report that Dr. Shore, on the first of January, would complete twenty-five years of consecutive service as Director of the Laboratory and Member of the Executive Staff of the State Board of Health. I realized that this was a longer term of office than any other man connected with the Executive Staff had ever served. The reminder set me to thinking of the almost unbelievable progress in this work which had been achieved under Dr. Shore's direction. I felt that some official note should be taken of his faithful discharge of duties in such an important capacity for so long a time.

We concluded that the best recognition of Dr. Shore and his work that we, who were his colleagues in the work, could give to him would be to dedicate the January issue of the Health Bulletin to him. I called on him a few days later and requested a photograph, to appear on the front cover of the Health Bulletin, for the January issue, thus celebrating the completion of his twenty-five years of work. I told him that we wanted to publish the photograph, also to write a short editorial sketch about him and his work. His response was characteristic of the man. He said: "All right, provided you do not lay it on too thick." I responded that the promise in that case was easy to make; that in my opinion it would be impossible for us to exaggerate the value of his work in the interest of public health to North Carolina.

Later on, when I received the first copies of the January issue from the printer, on the afternoon of January 3, I called him up and told him I had a copy of the first number and that I would like for him to have it that evening. The next day I received a personal note from him, a part of which I quote: "Yesterday evening I went home and read the article which you dedicated to me and I was very proud. I believe, though, that I felt as much humility as pride. I will always remember it and I shall try to make it the ideal of whatever may remain to me of life and work." It is the State's misfortune that that time was so short.

In the note just quoted, we have evidence of one of Dr. Shore's chief characteristics and that was modesty and humility always. He had three other distinguishing traits, namely, unselfishness, sincerity, and friendliness. Governor Bickett once said in a speech: "No man ever rode to

greatness on the wings of selfishness." It could almost be said that Dr. Shore became great through his unselfishness.

In 1929, when the University conferred the honorary degree of Doctor of Science on Dr. Shore, Professor James F. Royster commended him for having convictions and the courage to defend them. He congratulated him on his independence, politically, in being a non-conformist in an age of crass conformity.

It was my particular good fortune to have served for nearly twenty years as a fellow member of the staff with Dr. Shore. We have stood shoulder to shoulder in many causes in the interests of the public health. I never fail somehow to think of him every time I read the line quoted by Osler in his introductory to a life of Pasteur that "he was the most perfect man who has ever entered the Kingdom of Science." In Dr. Shore, as head of this Laboratory, the time, the man, and the cause were more perfectly joined than in any other enterprise of which I have knowledge.

The founder of this Laboratory was Dr. Richard H. Lewis, but its builder was Dr. Clarence A. Shore. In the year 1900 the State Board of Health, through Dr. Lewis, its Secretary, requested the State Agricultural Department to examine some samples of water from public water supplies until the Board of Health could provide its own examiner. In 1903 the General Assembly enacted a law permitting the State Board of Health to charge $5 for each analysis of a public water supply, this fee to be used in paying the Department of Agriculture for serving as examiner. This was the beginning of the laboratory work in this State.

In 1905 the General Assembly formally and legally established the State Laboratory of Hygiene. It imposed a water tax of $64 on all municipal water supplies, but it only appropriated $600 per year additional for the support of the Laboratory. The small appropriation made it necessary to still call on the State Department of Agriculture for assistance, which they provided by contributing $750 a year. The General Assembly in 1907 increased the appropriation for the State Laboratory to $2,000 a year. They made provision for Pasteur treatment, and they put in a whole time director.

The Laboratory was established in the old Holloman Building, on Fayetteville Street, the lower floor of which is now occupied by the Grant Department Store. The first director was Dr. Gerald McCarthy. The appropriation being meager, the equipment poor, the service was generally unsatisfactory. Later on in that year, 1907, Dr. McCarthy resigned. Dr. Lewis succeeded then in interesting Dr. Shore in the laboratory work. So, in December, 1907, Dr. Shore came to Raleigh and officially commenced his work as Director of the State Laboratory of Hygiene on January 1, 1908. Dr. Shore had just graduated that year from Johns Hopkins Medical School. He had previously taken the B.S. and M.A. degrees in the University of North Carolina and had taught in the Medical School there for a while before beginning his medical course at Hopkins.

When Dr. Shore took the direction of the work, he reorganized, refitted, and reequipped the Laboratory, which has for the past twenty-five years, under his direction, made history, with which every physician in North Carolina is familiar, and, I may add, of which all of them are very proud.

In speaking of Dr. Shore just the other day, a fine, influential family physician of Eastern North Carolina remarked that in his opinion Dr. Shore was beloved of more physicians than any other man who had lived in North Carolina within a century. I have no doubt the doctor's opinion is literally true. From the very first day of Dr. Shore's incumbency in office he adopted a policy of friendly helpfulness which he never failed to extend to every physician, health officer, or individual citizen of the State who came in contact with him.

He was a recognized authority on the subject of Hydrophobia. He was sent to England in 1923 by the State Board of Health to make special studies on the subject of Controlling Rabies. In 1927 he was selected by the United States Public Health Service as one of two men to represent this country at an International Conference on Rabies which was held at the Pasteur Institute in Paris. This latter conference was under the auspices of the League of Nations, and the report of the conference was issued from the office of that organization in Geneva.

In the earlier years of the Pasteur treatment for people who had been bitten by rabid dogs, the treatment could not be sent out from the Laboratory to physicians in other places, but had to be prepared fresh each day and given in the Laboratory. During those years troops of people would come to Raleigh from all parts of the State. They would have to stay for twenty-one days in order to complete the treatment. They were, as a rule, a forlorn, hapless group of men, women, and children, most of them coming from the remote country districts. To all of these poor, miserable people he extended a sympathetic interest, unusual for a man in such a busy executive place. He thus endeared himself to people all over the State who had never had any contact with their government before. In later years, through his efforts, the material has been available to physicians all over the State. In this one effort alone the Laboratory has saved the people not only an enormous sum of money every year, but, by making the Pasteur treatment available, through their own physicians, has saved them much misery and suffering incident to the long trip and three weeks' stay in Raleigh.

Through his industry and genius, the Laboratory has grown and expanded its services to the people of the State in many ways. In 1917 the plant here on the present location was completed. The placing of every brick in its building was supervised by him, according to plans which he worked out and devised. The Laboratory today ranks as one of the principal necessities in the life of our people.

I recall definitely the first time that I met Dr. Shore. It was at Winston-Salem, his native home, at the meeting of the State Medical Society in 1908. I had been designated by the Sampson County Medical

Society to prepare and read an obituary paper on the life and work of Dr. P. L. Murphy, the founder and builder and for twenty-five years superintendent of the State Hospital for the Insane at Morganton, who had died a few months previous. Dr. Murphy was a native of Sampson County, and he was a warm personal friend of Dr. Lewis. Dr. Lewis had a paper himself honoring his departed friend.

On the night we presented these papers, at the conclusion of the services, Dr. Lewis told me that he had succeeded in getting Dr. Shore to take the work of Director of the State Laboratory of Hygiene, and he wanted me to come around to the Conjoint Session the following day and hear his report and meet Dr. Shore personally. At the time he made a remark that I have never forgotten. He said that in his opinion Dr. Shore would build a Laboratory of Hygiene which would be just as distinguished in service to the people as the Morganton Hospital, organized and built by Dr. Murphy, had been. This was a truly prophetic utterance.

From the records on file in Dr. Parrott's office, the cost to the taxpayers of the maintenance of this Laboratory during the last fiscal year was about $42,000. During that period it provided, mostly free of charge, to the people of the State products which, if purchased in the open market, would have cost more than $1,000,000. What that means, I hope I may be pardoned for illustrating from my own personal experience in only one item.

For a few years following the beginning of the laboratory work under Dr. Shore, I was practicing medicine in the town of Clinton. I had considerable practice among the people in the country around town. Diphtheria at that time was very prevalent in the late summer and fall of every year. People being poor, they did not call a physician, when sickness occurred, until they thought it was absolutely necessary. On numbers of occasions I was called as night to drive several miles, to arrive and find a child being strangled to death of diphtheria. The only known treatment for that horrible disease is a laboratory product, now manufactured right here on this ground, known as "Diphtheria Antitoxin." The wholesale cost to physicians in practice at that time for a dose of 5,000 units, which was the smallest that could be considered curative at all, was $7.50. Naturally very few among the poor could even pay for the wholesale cost of this necessary life-saving agent. The consequence was the physician had to pay for it himself or see the patient die, without making an effort.

Doctor Shore immediately saw the injustice of such a situation and the utter needlessness and cruelty of further delay in remedying it. The General Assembly was prevailed upon to provide the State Laboratory of Hygiene with a revolving fund of $2,000 with which to purchase diphtheria antitoxin at a contract price to the State, the antitoxin to be resold to any physician who needed it at the special cost price of $1.95 for the unit dose mentioned. Thus the wholesale price to physicians for this product dropped over-night from $7.50 to $1.95. A few years later he succeeded in getting a small appropriation from the General Assembly

and authority from the State Board of Health to make antitoxin right here at the Laboratory. The price dropped to 25 cents, simply to pay for the package and to prevent wastage, for any sized dose of diphtheria antitoxin necessary. Thus I found myself as a practicing physician in position to prescribe this agent without limit to any child needing it. The physicians and their patients all over the State became like me, grateful recipients of justifiable aid from our State.

Doctor Shore held the view to which I have always honestly subscribed, that a nation might just as well send its soldiers out to battle a foreign enemy without guns or munitions of any kind as for a state to send its physicians out to fight disease without providing them with every modern weapon available. Every physician in North Carolina ought to have available for his use, free of charge, at the expense of the State, every modern biological product which will prevent disease and death. I hope, therefore, that every person here today will take a solemn pledge to never allow the slimy hand of Politics or Commercialism to gain the ascendancy in the conduct of this work.

One day last December Dr. Shore came into my office just as I finished reading an editorial in *Science News Letter* on the subject of the part which radium has played in Cosmic Evolution. We immediately fell to discussing the further possibilities of radium control of cancer through the prevention of cell development in the pre-cancerous stages. He was much interested in the *Science* article, which was a review of a paper presented by a young Belgian scientist a few days before to a meeting of the American Physical Society. One paragraph in particular held his attention, which I will here quote:

"Projecting the story of his ever-expanding universe back into the past, like a motion picture film run backwards, the Abbe Lemaitre visioned a beginning-point when neither time nor space existed—when the whole universe as we partly know it today, spread across the diameter of millions of light-years, was all potentially contained in a single atom: a thing of no dimension, as we measure space, but massive enough and containing energy enough to furnish forth the uncountable billions of suns that since that movement have been rushing apart to the uttermost bounds of the cosmos."

After reading that paragraph, he laid the paper down and remarked quietly: "Now if he could only explain the origin of that first atom."

His interest always was in the potentialities for good or for evil in microscopic life. His mind was an immense reservoir of information in everything pertaining to that populous world of living forms to be seen only through the magnifying lense of a microscope. All of that he weighed in the practical terms of saving human lives.

Just a few days before he died, in a little group to which I was invited, he presented a paper the title of which was: "An Inquiring Mind." It was one of the most thoughtful papers to which I have ever listened. The keynote was: "The Eternal Question of the Search for Truth" and the

shock that came to his mind as a young student when he first realized that the achievement of ultimate truth would be forever beyond the ken of mortal man.

The generous conception of Dr. Parrott and the equally generous act of the General Assembly in formally dedicating this Laboratory to Dr. Shore will be a fitting monument to his twenty-five years of arduous labor.

I have no doubt that when his journey here was ended and his great spirit "stood naked, alone, undefended and knocked at the uttermost gate," that the portals swung open for "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me" was password enough for him.

His memory here is immortal because it will live in the minds and hearts of his associates "made better by his presence." We who are assembled here to do honor to his memory should need no urging to come along in a rededication and reconsecration of ourselves in behalf of the mothers and children, and the poor and afflicted regardless of age, race or creed, so that we may join our comrade in the "Choir Invisible whose music is the gladness of the world."

. . . Benediction—Rev. Howard E. Rondthaler . . .

Rev. Howard E. Rondthaler: Grace, mercy and peace, from God our Father, and the Lord Jesus Christ, be with us all, evermore. Amen.

. . . The Dedication Service was concluded at 6:30 P. M. . . .

THIRD GENERAL SESSION

Wednesday, April 19, 1933

The Third General Session convened in the Ball Room of the Hotel Sir Walter, Raleigh, North Carolina, on Wednesday morning, April 19, 1933, at 9:15 A. M., President Dr. John B. Wright presiding.

President Wright: The session will come to order and the first paper on the program is by Dr. Ernest M. Poate, of Southern Pines, on "Teaching Psychiatry."

THE IMPORTANCE OF PSYCHIATRY IN MEDICAL EDUCATION

By Ernest M. Poate, M.D., Southern Pines

Professor of Psychiatry, School of Medicine, Duke University

The scope of medical education is peculiarly dependent upon the opinions of the profession at large. No medical school can function without clinical material for teaching: and it is the physicians of surrounding communities who send the necessary patients. No medical school can exist without students: and it is the medical profession, again, whose opinions directly or indirectly influence prospective students. Therefore

the profession at large must understand and approve the curriculum of the school of medicine, if that school is to function successfully.

And so I welcome this opportunity of explaining what is being done, and particularly what we hope to do, in psychiatry at Duke University School of Medicine; and ask for your approval and cooperation.

Every project for medical education must be examined from three angles: First, as to the character and extent of clinical work, second, research, and third, direct instruction. The last includes, or should include, not only the practical teaching of what is known about diagnosis, prognosis and treatment, but also a constant effort to learn new things worth teaching. So we shall try to discuss the work of the Division of Psychiatry under these three heads.

As for what is being done at present, in clinical work, the Division now handles from 40 to 45 new cases each month. Of these, about 30 are seen on the wards and in the out-patient clinic, and are, of course, free patients. From 10 to 15 more are seen in the Private Diagnostic Clinic, and these pay a nominal fee only. An attempt is made to give every case a reasonably complete study, and to write detailed notes (for the most careful study is of little worth unless recorded).

Whenever possible, an anamnesis is obtained from relatives or friends: in every case, detailed family history is obtained from the patient, with an estimate of the personalities of immediate relatives, and a general description of the home environment, the social, economic, religious and familial situation as well as the direct medical history of family. Detailed personal histories are taken, including investigation of intellectual development, education, economic status, psycho-sexual development, social and familial adjustment, a careful study of the personality and habits, and a chronological history of all morbid symptoms, physical as well as mental. In each case, mental status as complete as the patient's condition permits is made and recorded, with descriptions of mood and emotional reactions, stream of talk, mental content, (including anxiety, fears, phobias, compulsions, obsessive ideas, etc., as well as search for delusions, hallucinations, paraesthesias, etc.). Orientation, recent and remote memory, present intelligence level, insight and judgment are tested, and complete neurological examination is made. In each case, the record ends with a diagnostic summary, tentative diagnosis and prognosis, and detailed suggestions for treatment and management. That is, we try to return these patients to the family physician with all obtainable information, and particularly with detailed suggestions for after-treatment.

In the field of research, attention is chiefly concentrated upon the problem of neurasthenia. An attempt is being made to develop logical concepts of etiology and symptomatology, and to present neurasthenia as a pure tension-fatigue reaction: and from this foundation to work toward rational methods of treatment. The first report on this study is now ready for publication: it was read at the Wake County Medical Society meeting in February, 1933. A statistical study of the relation of abnormal preg-

nancies and difficult births to the later development of psychoneuroses is now under way: this will attempt a practical test of Otto Rank's theory of the "trauma of birth." Some sporadic experiments with hypnotism as an anaesthetic, and in the treatment of the simpler neuroses, are being done.

As for direct teaching: This year, psychiatry is being taught to the senior students during six months (two quarters). During the three months, January-March, inclusive, two hours weekly were devoted to theoretical psychopathology, including the psycho-sexual development, studies of personality, its relation to physique and to endocrine development, the effects of heredity and environment, etc. During the present quarter, two clinical lectures weekly are being given upon the actual symptomatology and treatment of the major psychoses, the psychoneuroses and simple neuroses, and the psychic strains seen in physical disease. Four two-hour clinics will be given at Dix Hill State Hospital, on major psychoses, and the students visited Caswell Training School last week, with Doctor Davison, for demonstration of the various types of feeblemindedness. An attempt is made to stress particularly the practical problem of the neuroses, with which every clinician must deal, the presence of neurotic symptoms in somatic disease, and (most important for prophylaxis) the pre-psychotic symptoms of abnormal personalities.

This sums up, very briefly, the work now being done. In the limited time available (only two days weekly) it is impossible to accomplish more: but this is far from being enough. Next year, at least three months instruction in psychopathology, (2 hours weekly) ought to be given the third-year class, and the seniors should receive six months of clinical psychiatry, 2 hours weekly, supplemented by instruction given on the wards, at the bed-side, to small groups. This would require full-time attendance by the psychiatrist: and that, I believe, is essential to a well-rounded medical course.

Incidentally, the study body of the University is greatly in need of psychiatric direction and advice. Students from other departments frequently complain of the lack of guidance in matters of mental hygiene.

Now, to discuss the future of psychiatric teaching. It is coming to be generally accepted that the medical school of the future must have a department of psychiatry coördinate with other major departments. Already, this is being worked out at Yale, Columbia Medical Center and elsewhere: and at the New York Hospital-Cornell center there are five major departments, medicine, surgery, gynecology and obstetrics, pediatrics and psychiatry. Recent comment in *Mental Hygiene Bulletin, American Journal of Psychiatry* and elsewhere stress this development, as does Doctor Noble's report on the work at Yale, in which he declares that every general hospital should have an attending psychiatrist.

The establishment of such separate departments of psychiatry is highly necessary: but it is even more important that the psychiatric attitude should permeate all departments. In all fields of clinical medicine we

deal with people, and all people have minds which must be affected by the disease situation. Neuroses have surgical and gynecological as well as medical implications: a distended abdomen may be a surgical belly or an acute psychogenic distension, nausea and cessation of menstruation may indicate a real or a phantom pregnancy. Bed-wetting in children is almost always psychogenic; night terrors and actual convulsions are much more often hysterical, in their inception, than epileptic; malnutrition and infantile diarrhoeas, etc., are caused by psychic strains much more often than is generally realized.

The wards of Duke Hospital (as of all general hospitals) are a mine of psychiatric material. In every case of sickness there must be psychic strains, and fully 60% of all cases present major psychiatric problems (which often exacerbate, if they do not wholly cause, cardio-respiratory, gastro-intestinal, genito-urinary and gynecological complications; and in one-fourth of all admissions the basic problem is entirely psychogenic. We ought to present to the students not merely "cases," but *patients*. We ought to regard disease not merely as a somatic state, a bacterial invasion, an organic insufficiency, but as a general situation to which a given personality is exposed. The direct strains caused by pain and anxiety, the worries as to economic conditions, the affective relations to family and friends—all these influence the patient's symptoms more powerfully than is realized. A rise in temperature may follow a quarrel with wife or son, as well as a new bacterial invasion: the doctor's attitude of hopelessness may result in a death which his encouragement might have prevented.

These are the very practical things we ought to teach our students, instead of leaving them to learn for themselves, in practice. We must show that every sick man is mentally abnormal; that many symptoms in unquestioned organic disease are neurotic. We must teach the recognition not only of the various types of frank delirium, from the maniacal excitement of lobar pneumonia to the low, muttering confusion of typhoid, but the pre-delirious states, of mild confusion and mental dulling, anxiety and fear, partial stupor, and the frequent dissociated, hypnoid states of febrile and exhaustive disease. Organic delirium should be differentiated from the psychogenic, hysterical, delirium, idiopathic epilepsy from organic epilepsy on one side, and truly psychogenic convulsive states on the other. Every disease situation is both psychic and somatic: it is only that proportions differ. Therefore, in addition to purely physical methods of treatment, one should invariably use also the psycho-therapeutic method —develop the psychiatric attitude toward all patients. This is but another way of saying that one must practice the Art of medicine: it is this art which we are trying to teach.

In the dispensary, we hope to teach the value of quiet, sympathetic consideration, reassurance and explanation of unfamiliar techniques; the use of suggestion to relieve pain and soothe anxiety. Thanks to the initiative of Judge Patton of the Durham County Recorder's Court, and Mr. Bradway, Director of the Legal Aid Clinic of the University, and to the

cooperation and interest of the Durham Crime Study Club, and several members of the University faculty, plans are already being formulated looking toward the establishment of an adequate psychiatric out-patient clinic. This should handle not only medico-legal cases, working in association with the various criminal courts, and with the juvenile court, but also every sort of behavior problem. We hope to set up an organization sufficiently flexible to handle problems of intelligence and behavior in the schools, problems of economic and social adjustment referred by the department of charities and by the various religious organizations, and to work in the city prison, and the almshouse, as well as to study cases coming through the general out-patient clinic of the Hospital, cases referred by private practitioners, and those which come through the legal aid clinic.

By utilizing services volunteered by the University faculty, and by graduate and undergraduate students interested in social, psychological and economic problems, it will be possible to organize such a clinic without any large expenditure of money. We believe that courses might be planned in the different schools, offering credits towards degrees for work in this clinic. "Teams" would be sent out to make studies of the general environment of patients, economic, social and familial, to make personality studies, and to investigate legal implications, not only criminal but civil (where questions of fraud, misrepresentation, marital difficulties and complaints of oppression are involved, for example: to determine whether allegedly tortious conduct is actually present, or the patient is suffering from persecutory ideas, etc.) and in general to obtain a well-rounded view of all factors in the situation, as well as to make a direct psychiatric examination. In short, this should become an "Institute of Human Relations" at least as comprehensively planned as those already established at Yale, Brown and elsewhere. Thus, a mass of invaluable information might soon be collected.

This work would maintain close connection with the State Hospitals, and the clinic would endeavor to act as a parole station, keeping in touch with patients who had been allowed to leave the Hospitals, and reporting upon them to the Hospital authorities, observing patients with psychotic symptoms and recommending committment if necessary, and endeavoring to recognize, and if possible to correct, early psychotic symptoms, in the hope of keeping patients out of the State Hospitals.

Thus, we could develop trained social workers, and offer to law students a practical course in medical jurisprudence, as well as giving our medical students invaluable experience in studying and handling all sorts of psychiatric problems in the environment which produced them, instead of in the psychic isolation of the Hospital. Behind every neurosis, behind every maladjustment, every case of marital and social unhappiness, lies a familial problem. It is always some relative or intimate who determines the patient's psychic difficulties. It is scarcely necessary to cite instances: The selfish, demanding, infantile mother who keeps her son "tied to her

apron-strings" until he becomes weakly effeminate; the aggressive, dominating mother, who boasts that her daughters cannot even dress without her aid; the rough, sadistic, bullying father who saps his son's initiative, brow-beats the boy until he cringes instinctively—the prudish parents who teach their children that everything sexual is nasty—these are common types, unfortunately. Work in such a clinic would help to teach our medical students to see maladjustments as the result of such faulty training.

All this, I repeat, is intensely practical. The basic purpose of psychiatry, as I see it, is to teach the importance of sympathetic, uncritical understanding, to the end that the family physician may be restored to his proper place as confessor, adviser, comforter and educator, able and willing to "minister to a mind diseased; pluck from the memory a rooted sorrow" and "cleanse the stuff'd bosom of that perilous stuff which weighs upon the heart," as well as to treat bronchitis or diabetes. Be he never so skilled in the medical sciences, the doctor remains a mere technician until he has learned that Art of medicine which depends upon human understanding. Within our limitations, it is that Art we strive to teach in the psychiatric division.

Thus far, I have spoken only of such projects as may be begun at once. With the generous coöperation of the faculties of the medical school and the University, one psychiatrist, working full time, could, I am convinced, set in motion all the plans outlined.

Someday, however, we hope for the establishment of an adequate psychopathic hospital unit: and a 50-bed psychopathic unit could be filled within three months from the patients now passing through the division. North Carolina has no real psychiatric center, and in this respect is behind many other states. Extra-mural psychiatry has been neglected: while there are good men, here and there, no organized effort is being made to handle psychiatric problems. The State Hospital service, though under-manned, is in the hands of well-trained men; but they are already over-worked, and in any case there must be a division between the care of truly insane patients and the care of the minor psychoses and phychoneuroses.

Such a hospital center would, first, serve as an emergency hospital for acutely excited patients awaiting committment. Too often, especially in less thickly populated counties, such cases are now confined in jails. (For this purpose, the unit should have a well-isolated disturbed ward.) Second, it would offer an observation service for border-line cases, to decide whether committment is necessary. Certainly, the State Hospitals are busy enough caring for obviously insane patients, without being required also to decide whether doubtful cases need committment or not. Third, this unit would offer treatment for the many psychoneurotic patients: the compulsive and obsessive states, the anxiety states, and the vast number of neurasthenias (often regarded as somatic conditions), none of whom do well under the general hospital routine. There is no place, now,

for such patients, except they can afford private sanatorium rates: and even then, they must usually choose between the "general sanatorium" and the private hospital for mental diseases and alcoholics. These patients should have a hospital of their own, with regulations suited to their condition and with opportunities for exercise, occupation-therapy, hydrotherapy, etc. Moreover, they offer a fertile field for further study, through which, some day, a rational theory of treatment may be developed: a treatment not wholly psychological nor wholly somatic. Psycho-analysis is admittedly suited to only a few cases: it is impossibly time-consuming, and sometimes results in very deplorable complications: yet the basic psychopathic features of the neuroses must be recognized. We should endeavor to apply the knowledge gained by psychoanalytic studies in the development of a simpler, more feasible technique; but we must also consider the somatic side of the neuroses, and study the endocrine dysfunctions, the alterations in blood-chemistry, the neurological reactions (functional, at least), and attack the problem from all sides.

The importance of such a center for teaching purposes is so obvious that it need not be stressed. Its importance for research is at least equally great.

Finally, to mention very briefly the nature of the clinical researches which have been planned: first of all, we hope to continue the study of the psychoneuroses, and especially of neurasthenia, from all angles, hereditary, environmental, neurological, bio-chemical, endocrinological as well as directly psycho-sexual, and to seek for a rational theory of incidence, and a rational therapy. Second, we plan a detailed investigation of hypnotism—which has been too much neglected, especially in this country—directed particularly toward its clinical value. Hypnotic suggestion will often relieve pain; it can be used as an anaesthetic for minor surgery, and as an adjuvant to general anaesthesia. (We have found that, in some cases, preliminary hypnosis can reduce the amount of ether required for surgical anaesthesia by one-half, and greatly diminish the after-vomiting.) Further study of hypnotism in these fields, as an aid to labor, to relieve the vomiting of pregnancy (which is often psychogenic) and in the treatment of the neuroses, should be of great value. Prolonged hypnotic states should be compared with the recent techniques of exhibiting sodium amytal and the bromides in katatonic and manic-depressive states: likewise, the value of prolonged hypnosis in psychoneuroses, as an extension of the Weir-Mitchel rest treatment, ought to be further tested.

The relation of allergy to the various neuroses, particularly to the intermittent gastro-intestinal neuroses, and to migraine, needs study. There is a possibility that dermatographia is usually, if not always, allergic in its significance, and not truly neurotic. The whole relation of toxemia, of whatever nature, to the neuroses, deserves more study than it has received: the high incidence of psycho-neuroses in incipient tuberculosis, and in other chronic, toxic and wasting diseases, is surely significant.

There are many other problems fairly crying out for solution.

Some day, I hope to see at Duke University a well-equipped psychiatric center, comparable with the Phipps Clinic, or the Columbia or Cornell Medical Center institutes of psychiatry, or the Boston Psychopathic Hospital. Our State needs such a center, not only for its direct clinical value, but for lay, as well as medical, education in psychiatry. It should serve as a clearing house for psychiatric information: a place to which physicians who have had success in treating psychiatric cases may come and teach us their methods; to which men may come to work out theories. It should, and will, I hope, be as ready to learn as to instruct: it should truly be a center, for the collection as well as the dissemination of pyschiatric information.

And some day, I hope, we shall see psychiatrists in attendance at every court, connected with every school, as well as working in every general hospital: not high-brow, theoretical exponents of an esoteric specialty, but practical physicians, well grounded in internal medicine, and as capable of valuing the somatic factors in mental disease as of recognizing the psychic factors in physical disease. To this end I appeal for the coöperation of the profession: for it lies in your hands, gentlemen. I shall gladly devote my life to this work, but it is the concerted insistence of the medical profession and not the efforts of any one man, which can alone achieve true progress.

President Wright: The next on the program is an address by Dr. H. A. Royster of Raleigh—"An Account of the Surgical Service, Dix Hill State Hospital for the Insane."

. . . Dr. Royster's paper was read by title. . .

AN ACCOUNT OF THE SURGICAL SERVICE IN THE STATE HOSPITAL FOR THE INSANE AT RALEIGH—1922-1932

By Hubert A. Royster, A.B., M.D., Sc.D. (Hon.) F.A.C.S.
Raleigh, N. C.

My excuse for presenting this report is that I happen to be the local representative on the consulting staff in surgery appointed by the Governor in 1921 for the institution named in the title of the paper. In the beginning a survey was made and necessary operations were done in groups alternately by my five colleagues (all of whom reside in other towns) and myself, until the patients needing immediate surgical attention were disposed of. For the past few years all of the emergency operations, and virtually the entire surgical service has fallen to my lot. For their early work at the cost of time and labor the non-resident consulting staff in surgery are due sincere credit. Needless to say all of us accepted the appointments fully aware that no compensation was attached, and none has been received.

For the first two years the operating department was located in the main building of the institution, where, despite incomplete equipment and

inadequate nursing, a number of operations was done with surprising success. Since the erection of a separate building for the physically sick inmates, now called the Hospital Center, competent care, both medical and surgical, is given, including special service for the eye, ear, nose and throat, all served by consultants. The operating suite is properly arranged and furnished, and the nursing personnel trained and efficient.

Before classifying the list of operative procedures during the first ten-year period following the appointment of the surgical staff, I desire to place emphasis upon certain observations which have impressed me through this experience. In the first place I entered upon the service with no false hope of curing insanity by surgical operations, and after a decade's work I still do not lay that flattering unction to my soul. Undoubtedly there are some mental patients who, by correction of defects, or removal of foci of infection, along with proper psychiatric therapy and competent institutional care, may be restored to usefulness, after being relieved of their disturbing symptoms. So much depends on the mental disorder that the role of surgery must be restricted to an effort at relieving the mentally diseased individual of his physical handicap in order that he may receive greater benefit from the special treatment indicated. My thesis simply is this: that the mentally ill patient, of whatever classification or degree, who is in need of surgical treatment or operation, deserves the same consideration as the patient of sound mind. An unbalanced person has as much right as any of us to be made comfortable, to be saved from suffering, to be restored to health, to have life prolonged.

My second observation is that for the most part pateints in an institution for the insane not only stand operations just as well as the average so-called sane patient in a general hospital, but also exhibit quite as good, if not better, post-operative reactions. This may be accounted for by the fact that the mentally diseased person is already conditioned, has had his recoil against society, and is living in a smaller world of his own; whereas the apparently normal patient in our ordinary cosmos still has his psychic fears and reacts accordingly. It is surprising to the uninitiated how easily the psychopathic institutional patient approaches an operation and how very seldom any violent reaction occurs. Here again allowance must be made for the type of mental ailment and the time at which the operation is performed. As a rule some form of preliminary basal drug is administered before general anesthesia, and a fair percentage of operations is done with the same preparation under local anesthesia in selected cases. Many of the patients are in the sixth and seventh decades of life; others, while not so old in years, are senile before their time, and constant watchfulness is necessary both in their pre-operative and post-operative management. Disturbances will occasionally happen, such as excitement over anesthesia, failing to stay quiet in bed, and pulling off dressings; but these incidents are few and far between, and are acts rather like those of

a child than of wilful misbehavior. Generally epileptic patients are the most difficult to control. Taken as a whole the patients under the discipline of the institution and through the regime of the hospital center are operated upon with no more anxiety or difficulty than is the case with patients in an ordinary hospital, and they respond as readily to the after care.

As a third and last observation I may mention some impressions concerning the results of surgical interference, especially upon the behavior of the patients. In many instances after operation the patients show no difference whatever in their attitude. These are largely those presenting no symptoms, either because their mental state was too dull to comprehend their condition or when operation was needed for some malignant or constitutional disease of which the patient was not aware. In a very considerable number of instances the behavior of patients was distinctly improved following operation, so that they became more coöperative—a word and a situation dear to the heart of the psychiatrist. For example, patients suffering from hemorrhoids, complete uterine prolapse, or incarcerated hernia, conscious of the disability which these affections produced though they may be unable to express themselves, constantly show their relief by improved demeanor after cure of their physical complaints. They are grateful, too, and often arrive later at the stage when they demonstrate their appreciation and realize their former unexpressed predicament. It is an agreeable satisfaction, gained through the years, to witness the increased comfort acquired by these mentally distressed people after their bodily burden is lightened and to have them prove their thankfulness in their own peculiar way.

I cannot forbear to interpolate the answer given me over thirty years ago by the late P. L. Murphy, one of our most noted alienists, in reply to a question concerning his relations with the patients at the Morganton State Hospital, where he spent literally his whole time. I did not understand how he could be so happy in the constant company of insane people. "Why," said he, "these folks are good company, they are my friends and they have lots more sense than many of the people I know on the outside." My association for ten years with the same class of patients here in the Raleigh institution, not so intimately, but as a frequent consultant, has convinced me that Dr. Murphy's declaration is that of a philosopher.

In offering the record of operative procedures employed during the period named, I seek no occasion to glory in numbers or to gloat over results. No operation has been advised or performed unless through the exercise of calm judgment it was indicated for the life, health or morale of the patient. In short, our guiding purpose—and this should be the sheet-anchor of every surgeon everywhere—has been to decide upon an operation not merely because it can be done, but solely because it ought to be done.

Following is the report of operations, listed in the order of their frequency, without reference to details or subdivisions: Herniorrhaphy, 36 cases; appendicectomy, acute 24, subacute, chronic or in the course of other abdominal operations, 10; therapeutic sterilization, 26, asexualization, 4; hemorrhoidectomy, 22; hysterectomy for fibroids, 18, for pelvic inflammatory diseases, 3; thyroidectomy, 16; interposition operation or vaginal hysterectomy for uterine prolapse, 11; salpingo-oophorectomy, unilateral or bilateral for ovarian cyst and other conditions, 9; curettage, diagnostic, 4, incomplete abortion, 4; trachelorrhaphy and perineorrhaphy, 7; excision of breast, carcinoma, 3, benign lesions, 4; open operation for fractures, 4; hydrocele, 4; amputation, arm, 1, leg, 1; excision epithelioma of face, 2; and one each of incised wound of trachea (attempted suicide), perforated duodenal ulcer, laminectomy for fractured vertebrae, recto-vaginal fistula, circumcision, resection of mandible for cyst, cholecystectomy, gastrostomy, gastro-enterostomy, varicocelectomy, skin-grafting. The operative mortality has been low: 1 death under anesthesia; 1 from perforated duodenal ulcer, seen late; 2 from pneumonia; 1 from nephritis.

In addition to the above there were many lesser lesions, such as abscesses, carbuncles, furuncles, leg ulcers, etc., and numerous injuries, such as fractures, dislocations, concussion and compression of the brain, etc., all demanding surgical treatment. No record of the hundreds of tonsillectomies and other operations on the nose, throat and eye by my associates are included in this review.

Summarizing my experience over the decade I can say in all sincerity that, in association with the patients in a hospital for the insane, and with the physicians who devote their lives to them, I have learned to understand better mentally sick individuals and to realize that many of our patients in general hospitals and in private practice are potentially psychopathic subjects, needing all the foresight we can muster to consider their mental state, as well as their physical, before advising operations. Furthermore, I know that my surgical vision has been broadened and clarified, so that I can now look backward and contemplate the number of patients who might have had earlier recognition and management of their mental disorder rather than the removal of a questionable "chronic" appendix or the tacking up of an innocently retroverted uterus. Operative scars on many of these patients are but the foot-prints of ambitious operators who cut into anybody who will lie still long enough. There are numerous exceptions, of course, to the silent testimony of scarring, for a goodly percentage stands for operations of necessity even in the mentally diseased person; but the instances are sufficiently abundant to suggest study of all patients with an eye to the relation of psychiatry and surgery. The "unfortunate victims of this abdominal polypragmasia" belong chiefiy to the group of women who have been subjected "to multiple laparotomies, of which every one, especially the first, had been better omitted." (Haberer). There can be no escape from the responsibility that lies upon

us to regard the moral and the mental attitudes of those who consult us before, during and after operations as a part of the surgical scene. We will do well to concur in the conclusion of the fictitious, but credible, character, Dr. Serocold, who lived long enough to declare that "he was too old to think any human behavior peculiar."

President Wright: The next is an address by Dr. Albert Coates of Chapel Hill, "The Physician and Administration of Justice."

. . . Dr. Coates was not present . . .

President Wright: The next paper on the program is "Nutritional Disturbance in Relation to Dental Disease," O. L. Pressnell, D.D.S., of Asheboro.

NUTRITIONAL DISTURBANCE IN RELATION TO DENTAL DISEASE

By O. L. Presnell, D.D.S., Asheboro

In our efforts toward the conservation of health we have come to attach very great importance to focal infections as contributing factors to degenerative diseases. With the increasing mass of clinical evidence which has emphasized the removal of foci of infection, the trend of modern thought has often assumed the attitude that degenerating tissue in any part of the body, when found to be infected, had its principle, if not only, cause in the entry into that tissue of bacteria, and that with the removal of the focus of infection all contributing factors would be eliminated. The many disappointments which have followed treatment based wholly upon this hypothesis would suggest that there are factors, other than bacterial, of equal or greater importance in their contribution to the degenerative process, and which demand proportionate consideration.

It is of great significance that quite universally now dental tissues are deemed to be the most common locations of focal infections that are considered to be causative of degenerative processes. This is explained by the fact that dental caries and periodontal disease are the most prevalent of all diseases among civilized people, that the tissues of the oral cavity are at all times exposed to outside influences, and that any break in the continuity of these tissues opens an avenue for the invasion of pathogenic organisms into the body.

While dental diseases are frequently found associated with other degenerative processes, and while they undoubtedly do contribute to functional and organic disoders, functional and organic disease may lead directly to tooth destruction. Furthermore in the light of our present knowledge, stress may be laid upon the fact that dental disease is a symptom of a systemic disturbance, that it is but one part of a disease picture brought about by a general functional upset, and that there are other parts of the picture which are a result of the same disturbance and which together with the dental disease form a complete picture which is itself indicative of the primary cause.

We can no longer consider dental caries and periodontal disease as being produced by purely local factors. We must discard neglect and lack of cleanliness as the primary cause, because we find excellent teeth in healthy mouths that have never known a tooth brush or the care of a dentist. Again we see widespread caries and gingival disturbance in a mouth in which prophylactic measures are diligently employed. Bacterial action cannot be considered the primary factor because the organisms associated with dental caries are found abundantly in the mouths of both the susceptible and the immune. While we do not possess a complete knowledge of the etiology of dental caries the great amount of research which has been done by a host of workers indicates quite conclusively that it's prevention or control depends primarily upon adequate nutrition.

Price, Davis and others report an 85-90% success in the control of caries, a general physical improvement, and a marked decrease in susceptibility to minor infections, in large groups of children, through correction and reinforcement of the diet. While there is not a uniformity of opinion among these investigators as to the stress which they place upon any particular nutritional or activating element, we cannot fail to be impressed with the uniformity of their clinical results. Some workers consider a deficiency of the fat-soluble vitamins as being the most important factor in the production of caries. Others place the emphasis upon a vitamin C deficiency. Still others upon a mineral deficiency alone or in combination with a deficiency of certain vitamins. A comparative study of their experimental and clinical data would indicate that there is no single agent which alone by its absence is responsible for the degeneration of dental tissues, rather that the degenerative processes are a result of a constitutional imbalance which is itself incited by a deprivation of one or more of the agents required for normal cell function, and that bacterial action becomes a contributing factor only after tissue resistance has been lowered. This is more readily understood when we observe the response of tissue cells to nutritional changes.

First we would consider the normal cell, created for a specific purpose, dependent in its ability to function normally upon being nourished by a normal blood. In the absence of the required nutritional and activating elements we would not expect a normal functioning of that cell. If the cell fails to function normally degeneration occurs. When foods have been tested in living animals, it has been found that some very definite effects on the cells are obtained. For example, Howe observes that a deficiency of vitamin A has a pronounced effect upon the odontoblasts, the dentin forming cells, causing them to lay down bone instead of dentin. This results in a less dense and less resistant calcification of the tooth structure. Another strikingly characteristic change which follows this deficiency of vitamin A is that glandular and duct epithelium in a large part of the body is replaced by a non-secretory type. Glands thus become unable to perform their proper function, and, in the case of the salivary glands the character of the saliva is changed. As a normal saliva is a prerequisite in the main-

tenance of healthy oral tissues, any alteration in its character contributes to a lowered resistance of these parts.

Another striking change in the odontoblasts occurs when animals are fed on diets deficient in vitamin C. In from five to seven days the odontoblasts may be seen to have stopped forming dentin and the dental pulp to have shrunken away from the formed dentin. In a few more days the dentin begins to be resorbed or liquified. The rapidity with which these cells resume activity after receiving a supply of vitamin C is remarkable, for upon the administration of orange juice new dentin formation begins within twenty-four hours. What really happens is that during a deficiency of vitamin C the cells in the connective tissues of the body cease to form intercellular substance. The early degeneration of the formative cells will make structural defects occurring during this period permanent. Further than this a hyperemia may be induced by the deficiency or by the degenerative process. Animal experimentation and clinical observation have shown that the blood supply of the pulp is a prime factor in dental calcification or decalcification. Cahn makes this statement: "Produce a definite hyperemia of the pulp and the dentin and enamel undergo decalcification."

Scurvy is definitely associated with a vitamin C deficiency. While a true case of scurvy is rarely encountered these days, it is easy to believe that a latent, unrecognized scorbutic condition is very prevalent. Inflammatory conditions of the gums ranging from a mild gingivitis to advanced pyorrhea are to be found in the mouths of a majority of the people of today. Excepting those cases of traumatic origin these can safely be considered as manifestations of a mild type of scurvy. The infection and pus in pyorrhea are secondary factors which enter the picture only after the primary degenerative process has begun.

Not only for the building and repair of calcified structures, but for the maintenance of normal defense against dental and systemic disease, an adequate supply of calcium and phosphorus are necessary in the blood stream. Sherman states that the average American diet is deficient in these minerals. Furthermore the actual ingestion of an adequate amount does not guarantee its normal utilization. Calcium in particular demands a mildly acid condition of the intestine for its absorption. Vitamin D has been found to be absolutely necessary to mineral assimilation and fixation. Since a minimum amount of minerals are necessary for our daily metabolic processes in health, and an increased amount in disease, if the required quantities are not supplied from the foods, whether from a lack of calcium and phosphorous in the foods or a lack of activators to make them available, a draft will be made upon the storage in the bones and teeth. This condition constitutes an important factor in the development of dental and systemic disease, both by disturbing organ function and by lessening the body's capacity to fight infection.

It is well known that poorly calcified teeth are associated with rickets. Hess states that in eighty per cent of all cases of rickets there is a high

blood calcium and a low blood phosphorous. Hawkins and others find that in active caries the same blood picture is found. In systemic pyorrhea, however, the calcium-phosphorous balance of the blood is the reverse of that found in caries, that is, a low calcium and a high phosphorous. Price finds a correlation between the mineral balances of the blood and of the saliva. That the establishment of a normal mineral ratio of the blood is followed by a normal mineral ratio of the saliva. As the resistance to dental disease is governed largely by the protective influence of the saliva,, and as the character of the saliva reflects the character of the blood which is itself governed directly by nutrition, we have in malnutrition a disturbance of our most important defensive forces.

It is not my purpose to discuss in detail the many phases of nutrition, rather that this brief presentation of a few of the pathologic conditions which may result from nutritional deficiencies alone, may serve to direct attention to the tremendous importance of the nutritional factor in the development of dental diseases and other degenerative processes.

President Wright: The next is "Consideration of the Problems of Syphilis in North Carolina," by G. Grady Dixon, of Ayden, a member of the State Board of Health.

THE PROBLEM OF SYPHILIS IN NORTH CAROLINA

By G. G. Dixon, M.D., Ayden

It is only within the last decade that public health authorities have undertaken a concerted effort for the control of syphilis. Prior to that time public sentiment did not permit a consideration of this disease on the same basis as other infectious diseases. It was looked upon as just retribution for sex promiscuity instead of a serious disease which has become the unfortunate and undeserved lot of many. In view of the widespread distribution of syphilis, its devastating effects upon the human race, the difficulties and the cost of treatment, and the reduced economic efficiency caused by mental and physical handicaps resulting from imperfect treatment, this disease is today recognized as constituting one of the outstanding problems in the field of public health.

History of Syphilis: The attempt to determine the origin of syphilis has for years been a fascinating study and the basis for interesting debate. While much information on the subject is now available, the question is still definitely unanswerable, and the early history of the disease remains clouded in obscurity.

The first known record of syphilis was made in Spain in 1493 soon after the return of Columbus following the voyage of discovery. For this reason, some investigators who claim that bones from pre-Columbian times offer evidence that syphilis occurred in aborigines in America, the disease is by them believed to have originated in the Western hemisphere. However, Dr. Ales Hrdlicka and his associates have carefully examined

a vast amount of pre-Columbian skeletal material and have not found any authentic evidence of syphilis in the Indians or Eskimos. Therefore, the weight of evidence is against the American origin of the disease, despite the outbreak of syphilis which is recorded as having occurred in Europe following the return of Columbus to Spain.

Whether syphilis existed in ancient times or is actually indigenous to this country really matters little, for we have before us nevertheless the problem of controlling this disease.

Prevalence of Syphilis in North Carolina: The incidence of syphilis in the United States is not definitely known. It is conservatively estimated, however, that there are no less than four cases per 1,000 population, both white and colored, constantly under treatment or observation. The actual prevalence rate for syphilis is undoubtedly much higher. A number of authorities have estimated that 9 per cent of the population is or has been infected with syphilis at some time. This estimate is arrived at by applying a stationary annual attack rate to a stationary population.

In the fall of 1932, a Committee from the State Board of Health, of which I was Chairman, carried on a syphilis prevalence study, based on Wassermann blood tests, in which 533 physicians practicing in practically all sections of the state, participated. Of the specimens submitted, 3,468 were examined, of which 700 or 20.1 per cent were reported as positive.

The percentage of positive specimens obtained from the Colored race was two and one half times higher than that for the White race, the comparative percentages being 30.2 for the Colored and 12.1 for the White.

The percentage of positive specimens among females of both races was slightly higher than for the males, namely, 21.9 per cent for females, as compared with 19.0 per cent for the males.

Certain syphilis prevalence studies, based on the number of cases under treatment, carried on in New York State and elsewhere, indicates that syphilis is more prevalent among men than among women, the ratio of male to female being about 3 to 2. These same studies revealed the fact that more males sought treatment than females. The disparity between the number of white men and women taking treatment was greater than the number of males and females of the Colored race. However, on the basis of serological reactions, it was found that more females are Wassermann positive than males. This was found to be true for White, Colored and Indians. In this respect, the results of the special Wassermann survey in this State conforms to the experiences elsewhere.

In the analysis of the positive Wassermanns for the White and Colored races, according to age groups, it was found that the highest percentage of positives falls in the age group 25 to 29 for both the White and Colored, in the proportions of 31.6 per cent for Colored females as compared with 28.3 per cent for Colored males; and 13.3 per cent for White females as against 11.5 per cent for White males. In the Colored

race, there is a second peak of positives which falls in the age group 45 to 54. In contrast, further analysis of the positive Wassermanns by age groups according to sex, for the Colored race, shows that the peak for the females is reached at an earlier age than those for the males, namely in the age group 15 to 19.

Information collected from physicians during the progress of the study indicated that there were approximately only 10,000 cases of syphilis under treatment in the State. By taking only one-half of the prevalence rates revealed by the Wassermann survey, and applying this ratio to the entire population of the State, it is conservatively estimated that there are not less than 275,000 cases of syphilis in North Carolina. Therefore, in view of the fact that there are no more than 10,000 cases of syphilis under treatment, it would appear that only one case of syphilis out of every 27 is being treated.

From this information, it is clearly apparent that the physicians in private practice, for one reason or another, are not carrying their proportionate responsibility in syphilis control work in North Carolina.

The Economic Loss Due to Syphilis: Aside from the social calamities caused by syphilis, the economic loss due to this disease is enormous. Considering only the cost of caring for persons infected with syphilis in institutions supported by public funds, we get a glimpse of the tremendous economic burden caused by this disease. Coincident with the study carried on with physicians, information was requested from thirteen State Institutions in North Carolina concerning the prevalence of syphilis among inmates.

Of these State Institutions, only six make it a practice to include the Wassermann test as a routine procedure in the physical examination of new admissions.

The total population at these six institutions on September 30, 1932, was 9,352, of which 634, or an average of 6.8 per cent were afflicted with syphilis. These same institutions, in the year 1930 admitted 4,223 individuals of whom 439, or 10.4 per cent were found to be infected with syphilis; and in the year 1931, admitted 4,138 individuals, of whom 452, or 10.9 per cent, were found to be infected with syphilis.

All State Institutions furnished information concerning the per patient per diem cost of caring for inmates. However, it was possbile to estimate the cost of caring for inmates with syphilis only in those (six) institutions which supplied detailed information relating to the prevalence of syphilis among inmates.

In these six institutions, it was found that the daily food cost averaged $0.336 per patient. Upon this basis, it is estimated that the cost of caring for this number of cases of syphilis amounts to $75,075.39 for food alone for one year. In computing this cost neither interest nor depreciation on the capital investment, salaries for attendants and other personnel, nor the cost of drugs, were taken into consideration. It will require $5,000.00 for the necessary drugs to treat these 634 cases of syphilis for one year.

The above estimates represent only a small part of the economic loss from syphilis. Loss of income because of disability, hospital costs other than hospitals for mental diseases, and losses because of shortened life spans of those afflicted with syphilis, represents an enormous burden, the total of which cannot be accurately estimated.

This study has been very illuminating, not only because it offers additional evidence that syphilis is widespread, but because it forcibly impresses upon us the gravity of this disease as a public health problem in North Carolina. However, we must look much further than merely at a current figure for the ultimate prevalence of syphilis either inside or outside of institutions. By continued effort in the next few years it may be possible to bring to light much more accurate information in respect to both the prevalence of syphilis and its social and economic effects.

The one real benefit that should grow out of this study is the awakening of a consciousness on the part of physicians and superintendents of state institutions that syphilis is an important public health problem, and impress upon them the need for thorough physical examination of patients and the importance of early and adequate treatment.

THE PHYSICIAN'S RESPONSIBILITY: It should ever be borne in mind that the medical profession occupies the most strategic position with regard to syphilis, and that little real progress can be made in the control of this disease without the wholehearted cooperation of the private physician. It is the physician who is in a position to provide epidemiologic information which is necessary for dealing successfully with the sources of infection and with control measures. He should bear his fair proportion of the burden of treatment, and accept his share of the responsibility for proper instruction of the patient, and for the dissemination of information to the public regarding the seriousness of syphilis.

The primary consideration of the public health control of syphilis and the immediate medical problem is to render the patient non-infectious as quickly as possible after infection has occurred. The ultimate consideration, both from a public health and economic viewpoint, is the cure and rehabilitation of the patient.

Our knowledge with reference to the control of syphilis is quite complete. Failure to control this disease is not due to any lack of scientific information; it is due to failure to apply that knowledge which we now possess.

We know that syphilis is widely prevalent. We know the cause and mode of spread of this disease. The spirocheta pallida has been known as the causative organism of syphilis for more than twenty-five years. In the use of the dark-field examination and the Wasserman complement fixation test and the precipitation test we have facilities for its exact diagnosis. The Wasserman reaction has been available to physicians since

1912. The drugs in the arsphenamine group have been the keystone of anti-syphilitic therapy for nearly twenty-five years.

Adequate Treatment Defined: In setting forth what constitutes adequate treatment for syphilis, one must take into consideration—(a) the type of the disease; (b) the stage and duration of the disease when it is first brought under treatment; (c) the age and physical condition of the patient; (d) the appropriate selection and proper method of administration of remedial agents.

It is beyond the scope of this paper to enter into a full and detailed discussion of the various phases which affect a satisfactory course of treatment. Suffice it to say that the treatment of syphilis is most valuable in the early stage of the disease. The efficacy of the treatment from the standpoint of cure is dependent primarily upon the stage in which treatment is begun.

Early Syphilis: For treatment of the usual type of syphilis, the duration of which is one year or less, the following schedule, based on fifty-two weeks of treatment, is recommended:

(1) Twenty-two (22) doses of neoarsphenamine.
(2) Thirty (30) doses of mercury (or bismuth, as indicated) intramuscularly.
(3) Nine (9) blood Wassermann tests, viz: Upon application of patient for treatment, and at the end of each course of neoarsphenamine, and at the end of each course of mercury or bismuth.

The mercury recommended is in terms of one dose per week, intramuscularly, for the insoluble salt. However, if the soluble salt is used, it is desirable to give at least two injections per week.

If the inunction method for mercury is used, a total of one hundred and forty-four (144) rubs should be given. These should be spread over twenty-four (24) weeks during the year, at the rate of six (6) daily doses per week. The daily dose should not exceed twenty-five grains.

First year's treatment should be divided into four courses of neoarsphenamine and four courses of mercury, (or bismuth, as indicated).

Treatment should be continuous, mercury (or bismuth) being given during rest periods from neoarsphenamine.

Latent and Tertiary Syphilis: For treatment of latent and tertiary syphilis, the following schedule, based on fifty-two weeks of treatment, is recommended:

(1) Twenty-three (23) doses of neoarsphenamine.
(2) Thirty-two (32) doses of mercury.
(3) Thirty-two (32) weeks of iodide of pottash.
(4) Ten (10) blood Wassermann tests; namely, upon application of patient for treatment, and at the end of each course of neoarsphenamine, and at the end of each course of mercury.
(5) Urinalysis every four (4) weeks.

The year's treatment should be divided into five courses, with a rest period of four weeks between each course.

Mercury and K. I. should be given in each of the five courses. However, neoarsphenamine should be omitted from the third and last course.

A negative spinal fluid Wasserman should be obtained before any patient is discharged as cured.

CONCLUSION: The untreated and insufficiently treated individual with syphilis is a menace to all those with whom he comes in contact. The hazard of contracting the disease from the untreated case is increasing daily as the opportunities to obtain treatment, both private and public, decrease.

Persons seeking treatment for syphilis fall into two major groups. One is composed of those who apply to clinics and physicians for free treatment or for treatment at greatly reduced cost. The other consists of those who can afford to pay for private medical care at the established fees. Today, the latter group is greatly in the minority, due largely to the present economic crisis.

If adequate treatment facilities are not provided for both of these groups, of which the former is in the majority, we can reasonably expect an increase in the prevalence of syphilis. It, therefore, behooves physicians and public health authorities to put forth every effort to have all active cases brought under medical supervision. It is recognized that the administration of treatment to persons suffering from syphilis usually falls upon the shoulders of physicians. However, physicians should not be expected to assume the burden of providing treatment for charity cases. To provide for adequate treatment of persons unable to pay for medical care is a responsibility of the State. Until the collected data regarding the public health aspect of syphilis is disseminated, it will not be possible to bring sufficient pressure upon appropriating bodies to make available the necessary funds for aiding the physicians in providing adequate treatment for indigents and others.

When the knowledge that is now in the possession of physicians and public health authorities as to the prevalence of syphilis and its destructive and far reaching effects is brought forcibly to the attention of the public, it is believed that this disease can be made as unpopular as smallpox or any of the other communicable diseases which have been so successfully controlled. Furthermore, if every case of infectious syphilis could be brought under treatment, the conquest of this disease could be accomplished in a few years.

. . . At this time Dr. J. R. McCracken of Waynesville, 1st Vice-President of the Society, took the Chair at the request of President Wright . . .

CHAIRMAN MCCRACKEN: The next speaker is Dr. R. A. Ross of Durham, "Incidence of Carcinoma of the Uterus in North Carolina: Its Treatment."

INCIDENCE OF CARCINOMA OF THE UTERUS IN NORTH CAROLINA: ITS TREATMENT

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If justification is needed for this paper it may be found in the fact that during 1932 there were 1089 women in North Carolina who died of cancer. Of this number 324 died of cancer of the uterus. There were 15,732 female deaths in the state from all causes. This means that one woman out of every 15 died of cancer and that one out of every 48 died of cancer of the uterus. To state it another way, 196 more women in this state died from cancer of the uterus than from appendicitis. The age incidence in this group runs parallel to most reports:

Age	*No. of Patients*
20 — 24	1
25 — 29	8
30 — 34	22
35 — 44	65
45 — 54	85
55 — 64	77
65 — 74	40
75 — 84	22
85 — 95	2
Unknown	2

When we consider the tremendous amount of propaganda that is being used from every type of agency, the increasing use of yearly examinations and the greater care now given during child-birth and afterward, this mortality figure is as amazing as it is incomprehensible. It emphasizes the fact that even greater care and effort must be exerted before this figure can be diminished appreciably.

The real treatment for cancer, as everyone knows and has known, is prophylaxis, early diagnosis and removal. The methods employed have undergone interesting trends. Formerly surgery was the only method available. This was accompanied by a prohibitive high primary mortality rate. Later we find improvements being made and with the advent of the extensive operations of Schauta, by the vaginal approach, and of Wertheim, by the abdominal approach. Even in the hands of such expert operators the primary mortality rate was not below 16.5 and a five year cure rate of 28.7 (Bonney). Then there were various cauterization operations perfected, some of which are still used: the high amputation with actual cautery as advocated by Byrne and the slow destruction by a hot iron as practiced by Percy. These methods could be used in combination. Their advantages are that they bring the operability rate to a higher figure, probably 60% or more. Their disadvantages are too familiar to the surgeon to dwell on at length: the inability to tell definitely the extent of the growth, the long and difficult operation with its many immediate

hazardous problems and the unfortunate sequalae are often formidable enough to stay the hand of even the most courageous operator.

It was only natural that new hope be given with the discovery and employment of radium and x-ray in the treatment of neoplasms. Both at home and abroad we find men making use of this new agent. Heyman, Regaud, Forssell, and Kelly, John G. Clark, Burnam and Schmitz were in the forefront. Soon we found splendid clinics being established and it is from such sources that we are getting worthwhile information today.

This paper reports 81 patients who were treated in the Duke Hospital for carcinoma of the cervex for the two-year period 1930-1932. During the same period there were over 2500 new patients seen in the out-patient clinic which means that approximately one patient out of every 35 had cancer of the cervix. All of these patients had tissue reports and received either x-ray, radium or were operated upon or a combination of these agencies. Our conclusions must be incomplete because of the short follow-up period (three years at the most) and the fact that our follow-up data are often inadequate. All of these patients have received communications.

In our series there were 52 white and 29 colored. All of them except two had had children, 11 had only one child and one patient had 14 children. The age varied from 24 to 75.

Age	*No. of Patients*
20 — 24	1
25 — 34	8
35 — 44	27
45 — 54	26
55 — 64	16
65 — 74	2
75	1

In 16 there was a familial history of cancer. Nine had had operations on the generative organs or vagina during the past two years. Ten had had local treatment for a time varying from one month to one year. Vaginal bleeding was the most frequent initial complaint with leukorrhea second. Suspicious symptoms had been present from one month to three years, the majority falling in the three month group. Most of them were diagnosed at the first visit to a doctor. Four thousand milligram hours was the largest amount of radium used at one treatment and a full erythema dose of x-ray was used in most instances. Three series of x-ray treatments were the limit used in our patients. One patient had a total of six treatments over a period of three years at other hospitals and at Duke. Seventy-seven patients had squamous cell type of carcinoma and four patients had adenocarcinoma. Out of the 81 patients there are 15 known fatal terminations varying from one month to two years. Seven are classed as hopeless at present. Eleven are tentatively classed as cured. There are 45 still being treated. Only three cases were operated on and these were very early cases where the operation was complete hysterectomy

and the lesion was found on microscopic section. They have all remained well to date. All of this group with only five to eight exceptions would be classed as far advanced, inoperable carcinoma.

We have attempted to follow the work of Healy in treatment, but have had to vary somewhat when the radium has not been immediately available. We feel that it is most important to learn the tissue type with which we are dealing. Healy and his co-workers have shown definitely that different types of cancer cells and cells of different ages show different sensitivity to the rays and that the most malignant ones, having histological structure of the embryonal or immature cell type with marked evidence of anaplasia and little stroma, are the most radiosensitive. He says that 17-20 per cent are very radiosensitive. The sensitivity diminishes as the cell type more nearly reaches the fully developed squamous cell.

We would rather give radium or x-ray first and do the biopsy later, where the diagnosis is evident, and we dislike to use the tenaculum on the mass feeling that the less traumatization the less likelihood of spread. In suspicious cases it is necessary to obtain tissue from two different localities so that the new growth will not be overlooked. As so many have pointed out, the cervix and uterus offer an ideal site for the combination of all methods of treatment. Our experience has justified the feeling that large doses of radium and x-ray are necessary for the most benefit. The initial treatment should be considered carefully and should be adequate. This is especially true in the use of radium where we get secondary stenosis of the cervix following its application. Recurrences are less amenable to treatment. In no instance have we had a serious skin burn or fistula develop from the roentgen therapy. These patients were seen by the radiologist and his ideas of treatment are quoted.

"Cases of carcinoma of the cervix are divided into two groups of early and advanced instead of the old classification of operable and inoperable. The early cases, where there is hope of a cure, are given more radical treatment than the advanced. If the cervix is patent, radium, filtered through brass or platinum, is inserted for 2400 or 3000 milligram hours, being careful to pack off the rectum and bladder walls. Following this treatment or at the same time, platinum, radium needles are implanted about one centimeter apart in the tumor tissue and a dosage of at least 2400 milligram hours is given, making a total of 4800 to 5000 milligram hours. This initial dosage is much more effective in destroying the lesion, as smaller doses often stenose the vault to a conical shape without sufficient radiation to destroy all the tumor. Further radium therapy cannot be given.

"Following this intensive radium therapy, deep x-ray therapy is given through three portals, front, right and left through the hips. At least 100 per cent of a skin dosage is given into the lesion. After two months, if there is evidence of improvement, more x-ray should be given. Usually the cervix is completely stenosed and more radium cannot be given. In cases where there has been little improvement following radiation and the

pelvis is filled with tumor, we do not feel that further radiation is of value and hypnotics and sedatives will be more effective. These patients usually insist on more x-ray therapy but it is easy to determine whether there has been sufficient improvement to warrant more therapy."

CHAIRMAN MCCRACKEN: Every little while we hear of some North Carolina Doctor who has gone out into the world and made good. Our next speaker made good before he left North Carolina, but he has done even better since then, and is now President of the American Public Health Association. We are delighted to have him with us on this occasion and we will be happy now to hear from Dr. John A. Ferrell of Clinton, North Carolina, and New York City. (Applause)

DR. JOHN A. FERRELL: Mr. Chairman, Ladies and Gentlemen: It is a satisfaction to me, I can assure you, to come back home. I regard North Carolina as home. Whatever in the way of ideals and principles and knowledge I have, I owe to North Carolina institutions—its University and its State Medical Society. Your Program Committee has been entirely too generous in awarding me recognition on your program. But whether or not I were on the program, I assure you I should not have missed attending this meeting when two of my good friends, your President and Vice-President, are presiding, with Dr. McBrayer as Secretary, and with the passing on of the responsibility to my former teacher, Dr. Manning of Chapel Hill.

I bring greetings to this Meeting from the American Public Health Association. That Association, like this Medical Society, is engaged in an effort to apply the knowledge of scientific medicine to the betterment of health and physical conditions throughout the country. Although economic limitations have interfered with some of the work of the Association, effort is being made in no wise to restrict the scientific program or curtail the value of the *Journal.*

The next Annual Meeting of the Association will be held in Indianapolis, in October, and I hereby extend a cordial invitation to everyone present if possible to attend.

I bring also greetings to this Medical Society from the Rockefeller Foundation which, like the members of the Association, is endeavoring to improve the welfare of mankind throughout the world. Except for your limited time this morning I should attempt to give you some idea of the scope and field of activity of the Rockefeller Foundation. It is an organization, as you know, endowed by Mr. Rockefeller. It now has a capital fund of nearly two hundred million dollars and its program of activities is divided into four divisions.

The newest, and the one receiving the smallest amount of the expenditure at this time is known as the Humanics Division. Another is a Social Science Division, engaged in aiding research and otherwise promoting social welfare activities on an international scale. Then there comes the Medical Science Division which is contributing in one way or another

on an international scale to the advancement of medical science. The fourth and oldest division of the Rockefeller Foundation is the one with which I am connected—that of the International Health Division. It is operating in some thirty-five or forty countries and its principal fields of activity are to aid in the sound development of state and local health service, and in the field of public health education by contributing toward the development of schools of public health, and by supplying fellowships which will enable carefully selected health workers to take university courses in public health subjects, and returning to their positions to give more able and more efficient leadership to the development.

In addition to these two general activities there is also one of aiding in the investigation and control of specific diseases. The oldest work in this group, as you all recall, applied to the field of hook-worm disease. The next was applied to malaria. A later one was an attempt to bring under control yellow fever, which has continued to be prevalent in South America and in West Africa. And more recently measures have been applied to the further investigation of tuberculosis.

The actual discoveries of knowledge with respect to these four diseases have not been numerous but with regard to hook-worm disease better methods of treatment have been developed and new anthelmintics have been discovered.

In malaria, it has been possible to domesticate the mosquito which is responsible in this country for the transmission of malaria, so that it is now possible to raise these mosquitoes in any month of the year and on any part of the continent. This work is an outgrowth of a study of the treatment of Paresis by the induction of malaria.

In the field of yellow fever, the fact that the disease is definitely a virus disease has been established, and a method of determining immunity through the use of the white mouse has been developed. The workers in this field with this very potent virus have been protected through the development of the vaccine. And more efficient methods of determining the prevalence and distribution of yellow fever have been perfected through the development of what is known as the visceratone—an instrument which makes it possible to collect specimens of blood without the usual procedures in autopsy. The visceratone is inserted in the side and a small specimen of blood is taken so that the pathologist can determine accurately whether or not the disease is yellow fever.

. . . Dr. Ferrell then read his prepared manuscript, as follows . . .

THE PUBLIC, THE PHYSICIAN, AND THE HEALTH OFFICER

*John A. Ferrell, M.D., Dr. P.H., New York City

A few comments on some of the current topics in the fields of medicine and public health will, I trust, be of interest on this occasion. The health of the public is the foundation upon which rests the happiness and pros-

*President of the American Public Health Association, and Associate Director, International Health Division, Rockefeller Foundation.

perity of the people. Public health is essentially a responsibility of government, but private physicians and private health agencies can and do share in its promotion. The Federal Government's responsibility includes international, national, and interstate matters. The health problems within the state are shared by the state and local government on bases that vary in the different states. The objective in all instances, however, is adequate health protection for every community. Usually the state supplies administrative leadership and technical experts, and the local organizations, aided by the state in funds and guidance, furnish the routine services for the community, the school and the home.

In scope, public health service embraces all measures necessary to safeguard the health of the people of the community by applying general community measures, and specific measures to individuals and families when necessary for the protection of the community. The general community measures include such activities as safeguarding the water and milk supplies, combatting communicable diseases, and educating the public regarding public health matters. Excepting when individuals are treated for preventing the spread of a communicable disease, the treatment of patients at public expense in general is limited to the indigent, and then should be regarded as an activity of the social welfare service rather than of the health department.

The factor of greatest importance in public health progress relates to the professional qualifications and general competency of the personnel. Suitable eligibility standards for employees should be established and enforced. A suitable board of examiners to pass upon the qualifications of health personnel should be set up and its guidance as to competency should be recognized by the authorities responsible for making appointments. The health workers should be regarded as technical and not political appointees and conditions as to appointment, tenure, and compensation should be on a merit basis. Pending the general recognition of this principle, the actual protection of the health of the public will fall far short of the possibilities. Where the merit system is not yet in force, it will be the tendency of friends of public health to advocate appointments of health officers by non-partisan boards, the members of which have overlapping terms, rather than by incoming mayors and governors.

The program of the health department, whether state or local, should be based upon a comprehensive study of the health problems, to determine their relative importance. In laying out activities for each member of the staff for each week or month of the year, emphasis should be placed upon the problems of greatest importance about which sufficient knowledge as to procedures is available to insure results. Important problems concerning which additional knowledge is needed as a basis for effective control measures should engage the attention of the research workers.

The cost of a creditable health service will vary. If the state will finance the specialized or technical services, such as epidemiology, engineering, statistics, laboratory, etc., the routine activities of a generalized

character in an average community can be financed, under present conditions, at an expenditure of $1.00 per capita, and in some instances at a little lower cost. Wherever there are exceptional problems and where economic conditions permit, more intensive service, particularly as a means of testing methods and enlarging knowledge, at least twice this amount may be found necessary.

The economic depression has led to reduction of general appropriations, including those for public health. No accurate index of changing health conditions is promptly available. The mortality statistics afford the only measuring rod we have, but they do not reflect accurately or promptly the effectiveness of public health work. The figures available for 1931 and 1932 tend to show a continued reduction rather than an increase in death rates. In recent months some of the health authorities, however, are reporting an upward trend in tuberculosis and other diseases, also in the infant death rates, and they believe that even should the depression terminate now, its influence for some time will be reflected in rising death rates for certain causes. It has been extremely fortunate that during the depression there have been no severe or highly fatal epidemics. Certainly under present conditions effort should be made to prevent sickness wherever possible, and as the health department is operating strictly in the field of prevention and its cost is shared by all on an equitable basis, appropriations for health service should be maintained, even though other public expenditures temporarily have to be reduced. The gains in public health have come slowly. They may not disappear immediately, but if the work is needlessly curtailed, the taxpayers will be confronted with a condition comparable to war because there will be unnecessary deaths and the taxpayers will be paying for the folly for years to come.

With respect to the doctor and his economic status, the developments of recent years have been none too encouraging. He, of course, always has to absorb a large share of the economic loss when his community is visited by depression. This factor during the past three years has been extremely severe on him, but if history is to repeat itself his status will be better when business improves. There are other factors, however, which may not prove so temporary that are discouraging to the doctor. Among them may be mentioned that communicable diseases, which formerly supplied the doctor with an important part of his practice, have steadily diminished, yet the development of conditions which will enable him to transfer his efforts to the field of health protection and disease prevention and receive fair compensation for his services have been slow in materializing. Moreover, with modern facilities such as good roads, automobiles, telephones, rapid mail, etc., the doctor can easily serve two or three times as many people as was possible in former times. Yet the number of people served by the average doctor has steadily declined, is 680. At the same time the number of doctors being graduated shows a yearly increase (about 5000 yearly as compared with 3500 deaths). This condition has been made worse because many medical students unable

to gain admission in medical schools in this country have gone abroad to study with the expectation of returning to this country to practice. Dr. West reported the number now abroad in medical schools as about 1500. The Confederation of State Medical Licensing Boards at a recent meeting took steps designed to check this evil.

Another subject which is engaging the attention of physicians is the majority and minority reports and recommendations of the committee on the costs of medical care. Just what influence the report will have on physicians and the practice of medicine remains to be seen. If experiments can be conducted which will lead to a rational plan that will work to the health and economic advantage of both the physician and the average family, all should, of course, welcome it. According to the report of the committee every dollar now expended for sickness is distributed as follows:

Public health	3.3	cents
Physicians	29.8	"
Hospitals	23.4	"
Medicine	18.2	"
Dentists	12.2	"
Nursing (bedside)	5.5	"
Miscellaneous	7.6	"
	100.00	

An experiment designed to insure medical service in sparsely settled communities is being tried in the western provinces of Canada. Physicians have been unwilling to locate there on the usual basis of private practice. To meet the situation, sixty-three rural districts, representing 21.6% of the 589,272 rural population of the province of Saskatchewan alone, have employed physicians on a taxable basis to supply all needed service, curative and preventive.

Another live topic in medical circles relates to the physician who presents himself as a *specialist* without regard to the character and extent of his preparation to practice the specialty. Three of the medical specialty associations have already established qualifying boards, and have published the names of those who have satisfactorily qualified. The more recent proposal is to extend this development to include all the important specialties of medicine and to publish under appropriate headings in the Directory of the American Medical Association the names of all physicians who have qualified.

Although we may not be able to see just how the present economic siutation of the medical profession will be adjusted, I have faith in organized society and its desire to be fair to every element essential to its well being. Next to the police in the protection of life, property and civil rights it will have to recognize the physician who safeguards the community against disease, injury, and wear.

The bright spot in the picture is the steady advance in scientific procedures. More men are at work than ever before in efforts to discover

new medical knowledge, to improve practices, and to prolong life, and add to human efficiency, comfort and happiness. Nowhere in the world have these aspects of medical science been more rapidly or more highly advanced than here in the United States.

CHAIRMAN MCCRACKEN: The next paper is "Conservatism in the Treatment of Tuberculosis: A Progressive Program," Dr. C. H. Cocke of Asheville.

THE CONSERVATIVE TREATMENT OF TUBERCULOSIS, A PROGRESSIVE PROGRAM

By CHAS. HARTWELL COCKE, B.A., M.D., F.A.C.P., Asheville, N. C.

Some years ago Dr. Robert T. Morris of New York divided the eras of surgical treatment into the Homeric, the Anatomic, the Pathologic, and the Physiologic,—or words to that effect, as I haven't his paper before me. This grouping shows the progress of surgery from its first rough, untutored efforts through the dawn of anatomical knowledge to the Virchovian era of cellular pathology and the Listerian triumph of asepsis to the present day concept of the real physiological surgeon, whose efforts are equally an attempt at restoring physiology as well as removing pathology.

In similar manner, one might group the eras of tuberculosis therapy into the Climatic, the Tuberculin, the Sanatorium and Rest-cure, the Compression era, and now its later development of the Surgical Treatments. These periods, covering as they do so much less in time, are perhaps much less well defined than the surgical eras mentioned, and naturally overlap and intertwine.

With no attempt at definitive description possible in the compass of this presentation, it is well to recall that perhaps the first serious efforts to treat tuberculosis that brought any measure of success were those of Brehmer and Dettweiler. Brehmer predicated his method of treatment upon the teaching of Rokitansky that since the heart in the tuberculous was too small, it needed strengthening by carefully guarded exercises. If the heart was weak, necessarily at the beginning of treatment it needed a *rest period*. That was subsequently to be followed by carefully guarded and graded walks. Resting benches were placed at about twenty paces along these walks, and the patients urged to avoid tiring themselves. Since tuberculosis was rare in certain mountain regions, he believed that sanatoria should be placed in the valleys of these regions, the location in the valley determined with the idea of least effort to the weak heart of the patient, who thus had a downhill walk back to the sanatorium, after his graduated uphill stroll. Thus began the first era of sanatorium treatment, his institution at Gőrbersdorf, (Silesia, Prussia), having been founded in 1853. In his book published some thirty-four years later, he recounts the treatment of 13,000 patients. Undoubtedly the favorable

cases got well, though he died unhappy because the world failed to accept his belief in the efficiency of his *exercise* treatment.

His most famous pupil, Dettweiler, after being convinced of the injury in some patients caused by walking, devised means for his patients to rest out in the open air, strongly maintaining to the end that *fresh air* was the chief agent in the cure,—not rest, as we now believe. Thus, in spite of his own belief, it is probably correct to give credit to Dettweiler as being the father of the rest cure in tuberculosis. It is unnecessary to review here the story of the consumptives' trek to the mountains and the West in this country in the last decades of the nineteenth century. Until the slowly disseminated and believed-in knowledge of the value of rest received a wide acceptance, the story of these pitifully deluded victims of a faith in the curative value of climate alone is one to make us shudder. Hundreds and thousands of poor souls in all stages of tuberculosis dragged themselves to the plains or mountains to a miserable and inevitable end all too often, not knowing that what the patient does is infinitely more important than where he does it. I would not have you conclude from this statement that I am unmindful of the fact that certain climates possess certain qualities definitely beneficial to the tuberculous. This I believe to be a proven fact, though statistical proof of the percentage of this benefit is wanting. In passing, I merely wish to mention the fact that mere residence in a salubrious climate is not sufficient to cure tuberculosis. It is "taking the cure" not "chasing it" that counts.

With Koch's announcement of tuberculin in 1890, again great hopes were held that at last a specific for the great white plague had been found. It is useless to repeat the disappointments of the next thirty years with the multitudinous variants of tuberculins developed and used. Suffice it that its value as a diagnostic agent is not only properly appreciated today and generally used, but as a therapeutic agent it has scant value,—and then even must be used with rare judgment.

Time does not allow a discussion of other biological efforts at treatment, and only cursory mention can be made of chemotherapy. After numerous disappointments, when Moellgaard a few years ago announced gold and sodium thiosulphate, (Sanocrysin), as possibly the long hoped for chemical agent that would cure tuberculosis; and, when this announcement had the endorsement of Knud Faber and Thorwald Madsen, again we had high expectations, which subsequent experience has proven unjustified. To date no specific chemical or biological product is in any sense considered a cure for tuberculosis.

With the economic progress in this country, came a large increase in the number of sanatoria for the care of the tuberculous,—private, municipal, county, state, and federal. Accumulating experience had pointed unerringly to the value of rest in the treatment of the disease; and, for the past two decades, rest in increasing quanities has been generally prescribed. In fact, in spite of all efforts at medicinal therapy, chemotherapy, tuberculin, and biological and vaccine therapy, it was inescapa-

ble that only *rest* was a specific in the disease,—but unfortunately this has meant many things to many minds, and still does.

Then came the compression era, started by a growing knowledge of the value of Forlanini's work in pneumothorax. Of external appliances for immobilization, shot bags, pneumatic jackets, postural rest, etc., etc., I can only say that they all have as their chief function an effort to put a diseased lung at rest. These all have scant value because of their obvious limitations in accomplishing what was hoped of them, and must not be too greatly relied upon. The various surgical procedures now daily practiced wherever tuberculosis is intelligently treated,—internal pneumolysis, to allow the collapse of cavities held open by adhesions; apicolysis or paraffin packs; phrenic crushings or neurectomies; scaleniotomies; thorocoplasties, et al.,—they all attempt as much immobilization of the diseased lung as the procedure can accomplish and the patient's pathology will permit. In fact, this era of phthysiotherapy by surgery is getting so popular and is receiving such loud acclaim, it has been thought well to pause and see if it is time yet to hand tuberculosis over to the domain of the surgeon.

One's first thought at the mention of compression therapy is of artificial pneumothorax, at once the first successful method used and today the method of widest use and greatest success. Formerly, we limited its use to a patient who had one lung relatively free of tuberculous pathology; today we know that fairly extensive pathology in the opposite lung will heal more rapidly with the relief from the toxins of the badly diseased compressed lung. Again, the present day tendency among the best specialists in tuberculosis is to resort to pneumothorax earlier in the treatment, with the threefold idea of stopping a destructive lesion with the probable danger of bronchogenic spread, of avoiding the possible danger of later inability to use the method because of pleural union, and lastly of shortening the length of time of inactivity which the patient must endure,—truly a conservative program of first rank! Nor do we allow certain extrapulmonary tuberculous complications to bar us from its use, now that the cautery and other competent treatments of laryngeal tuberculosis offer such signal and happy results.

With pneumothorax, a certain number of cavities can never be compressed, either because of a flexible mediastinum, of adhesions to the parietal pleura that prevent collapse and a chance for cure, or because of rather dense fibrous walls resistant to compression of such pressures as experience has proven are safe. Here, if repeated refills do not stimulate the mediastinal tissues to fibrous reaction and greater stability, oleothorax has a definite place in contributing to this stability. Again, adhesions which fail to stretch under carefully increasing pressure sufficiently to allow of cavity collapse may be severed by the Jacobaeus operation or one of its variants, though a word of warning may not be amiss that too much hope of success must not attend these efforts; and I further insist that the procedure should rest in the hands of only the most skillful and experi-

enced. This still leaves a certain number of cavities which are still open; and it would not be too hazardous a remark to make that the large majority of compression procedures are undertaken with the idea of obliteration of cavities. Here is undoubtedly a fruitful field for the least hazardous of the surgical procedures of proven, if limited, value, temporary crushing of the phrenic nerve or permanent neurectomy. Some surgeons, notably O'Brien of Detroit, believe that at least 75% of cases of pulmonary tuberculosis with cavities should undergo some form of collapse therapy as early in the course of the disease as possible. With this view I am not in accord; or rather I am not convinced of its immediate necessity, when patients are in a condition of proper control with respect to the rest cure and their habits. Certainly, phrenicectomy is the simplest of the surgical procedures; and in the hands of a skillful, well trained thoracic surgeon offers little real danger of disaster to the patient, even though in a recent series of twenty-five cases, the benefits of this procedure have been scant enough to dampen any great enthusiasm I might have for it. Perhaps we hope too much from it. While lesions and cavities in the lower lobes might quite properly be expected to derive most benefit from the elevated diaphragm and the absence of lung excursion, the sometimes marked effect upon upper lobe lesions has been observed frequently enough to encourage the surgeon in hoping benefit from it more generally than is commonly believed. In well defined, fibrous-walled upper lobe cavities incapable of collapse by pneumothorax, in my experience phrenicectomy has been a complete failure. Still, in these cases, I have it done as a preliminary to thorocoplasty; and, consequently, I do not condemn its use. However, just two months ago Dr. Archibald of Montreal, the dean of thoracic surgeons of America, told me he found the procedure unnecessary in thorocoplasty, and did not use it routinely before rib resection. But phrenicectomy does not cure tuberculosis,—it only overcomes the mechanical barriers to *rest* and allows the lung to heal. All observers seem agreed that the more recent the lesion the more likely the good result from phrenicectomy,—identically the experience of all careful observers of the results of meticulous bed rest without surgical procedures. The reason is obvious, being inherent in the pathological evolution of the disease and will be discussed briefly later.

Thorocoplasty, single or many stage, must of necessity be resorted to when pneumothorax and phrenicectomy have failed and the patient still presents a fairly unilateral condition, with open cavity or cavities and bacillary sputum. Here the choice of the proper time and type of operation is matter for the constant cooperation and consultation of the trained thoracic surgeon and internist, both of whom must have observed the patient for a period of several months. Under such conditions, immediate operative mortality should be low; and the results undoubtedly justify the procedure, as it is done in practically only such cases as offer a very poor prognosis otherwise. And again I would insist that this procedure is also but a measure of accomplishing for the lung what other measures

have failed to obtain, namely, *rest,* and that the operation does not cure the tuberculosis,—it enables nature to do so. The reason for insistence and reiteration of this fact is that I find a very generally expectant attitude of a markedly lessened cure time in those operated on, as compared with those not operated on. Herein lies a grave danger. Of all elements necessary for the cure of tuberculosis, time is the essence. No matter what the method of treatment any efforts to cheat time and hasten the cure unduly generally end in disaster. Nor is any procedure, pneumothorax or surgical intervention a *substitute* for the proper cure, which the patient must observe for many months, though undoubtedly certain activities may be permitted the compressed patient considerably sooner than the uncompressed.

I do not wish to be considered as opposing surgery in the treatment of tuberculosis. I am only insisting that it has its proper place only after more conservative measures have had a reasonably fair opportunity to test their efficacy. By conservative measures, I mean that the patient has had strict sanatorium bed care regime, as his case requires, elaboration of which is not necessary. And further that this shall have been tried for from three to six months at least, unless hemorrhage or definitely progressive extension has occurred, in which case compression and surgical intervention may become necessary sooner.

What may be expected of such an expectant and conservative routine? In the first place, I hold that the sanatorium is the place *par excellence* for the treatment of the tuberculous, despite many academic arguments to the contrary; and I further hold emphatically with my colleague, Dr. P. H. Ringer, that for the best results its location should be some 200 to 1,000 miles from the patient's home. Besides the freedom from the annoyance of business and home cares, daily interruptions, friendly and family visits, etc., (and all the disadvantages of attempting to treat the patient in identically the same milieu in which he developed his disease, discussion of which I cannot even attempt here), the sanatorium offers primarily a change, (which he definitely needs), a place and an opportunity for the developing of the new philosophy of life essential for any successful care of tuberculosis, a protection for the family he must leave, and a realization that here in the institution with its esprit de corps of dozens of others similarly fighting as he must, the proper emphasis is made that the patient himself must achieve his cure and that he cannot be handed it on a silver platter. However, what happens to such patients, not in isolated instances, but in sufficiently large numbers to warrant the position taken, is that in a very large number of patients, (certainly those seen in the average climactic resort in which I practice), such conservatism will, with sufficient time and the patient's cheerful cooperation, end in a satisfactory arrestment, if not a cure of the tuberculosis.

Naturally, a great deal depends upon the time at which the disease is recognized and the extent and kind of involvement. Far advanced, bilateral disease, with marked proliferative changes and destructive

lesions offer scant hope of more than amelioration at best, no matter what treatment is pursued. And yet here I would like to state one conviction that grows with the years in tuberculosis work, to-wit: that astonishing things will happen in apparently hopeless cases with sufficient frequency to warrant the statement that every patient with any measure of reserve left should be given the benefit of careful observation before an utterly hopeless prognosis is pronounced. I do not feel that an extensive, one-sided tuberculosis, even with definite cavitation discovered at the first examination by me is warrant necessarily for the immediate compression therapy. I do feel that such a finding is an indication of delay rather than one for surgery. That such conditions heal very frequently without compression of any sort I trust I can demonstrate with slides. The process of repair is largely a matter of absorption and resolution—to a lesser extent of fibrosis. It is now fairly generally recognized that the symptoms which bring the patient to treatment for tuberculosis are the result of fairly fresh invasions of the bacillus into allergiced fields in the lungs. As such, a good part of the pathology then represents an exudative or inflammatory process. Such then, unless quite virulent and aggravated by physical activity on the patient's part, quite frequently resolves under *proper rest.*

Will caseous lesions heal? Here we come upon a vexed and difficult problem. The first difficulty is one of definition, or perhaps better, of interpretation. Certainly, lesions which give the physical signs of caseation and the roentgenological appearance thereof, (as we at present use these terms), can be seen to melt away and disappear in the serial film. Again caseous lesions can be replaced by fibrosis; and certainly many so-called fibrous lesions in the film are seen to change and disappear so that either fibro-caseous lesions resolve, or the time has come to change and clarify our nomenclature or conceptions of tuberculous pathology.

What of the cavity? Can it heal unless compressed? Undoubtedly, in a great many more instance than could even have been hoped for some years ago. There is no point in raising a discussion of annular shadows; there is not only point but definite value I feel in demonstrating, as I shall do with the slides, the disappearance of these rings which have in many, if not all, instances shown themselves to be unequivocable cavities, without resort to any sort of compression therapy. Coryllos' recent observations before the last meeting of the National Tuberculosis Association upon the role of atelectasis in tuberculosis are here much to the point; and it may well be that atelectasis is produced not infrequently by closure of the cavity leading into a bronchus, when there is no harmful accumulation of sputum, that the resulting anaerobic state causes an immediately harmful effect upon the tubercle bacillus, which is a well known aerobe, and perhaps that anoxemia stimulate fibrosis. Certainly all clinical observation has proven that the two methods of healing in tuberculosis, resolution and fibrosis, can and do go on simultaneously, though not necessarily pari passu.

Occasionally a patient on the deitetic, hygienic rest cure alone achieves an astonishing cure by enormous fibrous and calcium deposit. How this is accomplished I cannot say, as I have no proper calcium studies of the cases shown. Certainly it is not so fortuitous a method of cure as resolution for reasons too obvious to mention; nor do blood calcium studies throw any particular light on the subject. Certainly raising the patient's blood calcium has not produced such a result.

If a patient under sanatorium care for three to six months at complete bed rest fails to gain or shows evidence of extension of his lesion, if the major lesions are fairly well confined to one lung, if there are not countervaling tuberculous or other complications to prevent, then I think some form of compression therapy is indicated, always assuming a competent cardiovascular system. First, I try pneumothorax, because it is safe; it can usually be controlled and stopped if necessary, its major disadvantages can be minimized with care; it is not shocking; and its benefits are usually so apparent to the patient that he is easily convinced of its value; and its results are frequently brilliant. Should pleural union prevent the injection of air or a satisfactory collapse, then I usually resort to phrenicectomy. Though certain cavities may be held open by stringlike pleural bands, these may be severed after the manner of Jacobaeus or Matson, and a satisfactory collapse be obtained. Persistence of open cavity and bacillary sputum after such a procedure in a patient who has largely a unilateral pathology and good general physical condition and a competent circulatory system, may then have some form of apicolysis, tamponade, or thorocoplasty, as decided upon by the surgeon-internist team, for as many other tuberculographers have insisted, surgery for tuberculosis should be undertaken only after careful observation and study by both the internist and the well trained thoracic surgeon. Thoracic surgery presents so many problems inherent in this field that its practice should be confined only to those of special capacity and training,—skill and competency in general surgery by no means predicate capacity for good thoracic surgery; this comes only from long study, application, and very special training.

This discussion is from the standpoint of a clinician engaged in tuberculosis work among a clientele of referred patients from near and remote origins; and is not meant as a socio-economic discussion of tuberculosis treatment in any sense. It presupposes the patient's capacity to avail himself of the measures suggested.

While I have presented in very brief and sketchy form a general outline of my ideas of the plan of treatment of tuberculosis, these remarks would be still more inadequate without the mention of what I conceive to be a prime consideration in the care of any case of tuberculosis. The prognosis is so modified by many factors, extrinsic and intrinsic, that an early, categorical statement of the outcome is hazardous. Likewise, conditions which seem to warrant a routine procedure of dietetic, hygienic bed rest care may alter at any given time, making it necessary immediately to

undertake some form of compression or surgical procedure. These should be undertaken with definite principles in mind to meet specific indications as well as looking forward to the ultimate arrest of the tuberculosis. To attempt to have a fixed rule for any given case is not likely to be possible, and will lead to failure all to frequently. The need, therefore, in treating tuberculosis is for intense individualism in any given case, with competent teamwork on the part of the well trained surgeon and the internist, who must work as a team before any surgical procedure is decided on. The decision should be made with three factors in mind. First, that there is a real need for surgical intervention; second, the kind and extent of the operative procedure required; and third, and very important, the optimum time for this operation.

You thus see that I do not believe that surgery is in any sense a competitor of conservative measures but an aid to them, when the latter have failed. Surgery should never be considered a substitute for the cure, as it does not cure tuberculosis. It only gives nature a chance to accomplish what she otherwise has been unable to do. The patient should be warned that collapse and surgical procedures in general do not relieve him of the necessity of taking the cure after they have been instituted. Tuberculous pathology heals slowly at best, and unfortunate activity after compression and before healing has taken place will ruin the chances of success in the best possible case of compression.

Chairman McCracken: The next paper is "The Problem of the Cross-eyed Child, An Appeal to the Family Physician," by Dr. W. P. Speas of Winston-Salem.

THE CASE OF THE CROSSEYED CHILD; AN APPEAL TO THE FAMILY PHYSICIAN

There is probably no field of preventive medicine or surgery which promises more, but which is more neglected, than that to which I wish to call the attention of the medical profession. The careers and happiness of thousands of children all around us are being sacrificed for the simple reason that we have been slow to grasp and disseminate a few fundamental facts involved in most cases of crosseyed children. The fact that a large percentage of these cases are amenable to proper treatment, coupled with the fact that so few seek treatment until they have reached the age where all hope of relief has passed, prompts me to bring this matter to the attention of the family physician.

Too often parents minimize the seriousness of this defect, being content with the fact that the child is happy and comfortable, and unmindful of the handicap to the child's future success and happiness. If an arm or leg of a child were paralyzed or deformed, the obvious defect would claim the attention of the parents, and little time would be lost in bringing the matter to the attention of the family physician. But if an eye is out of

DR. W. P. SPEAS' MUSCLE TUCKING INSTRUMENT

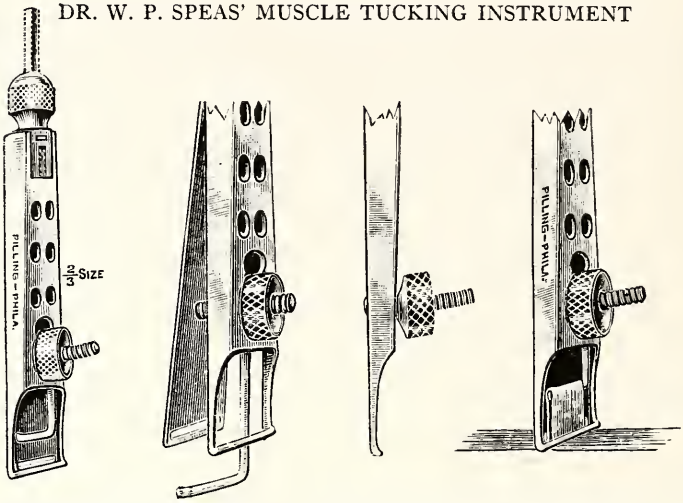

Fig. 1.—Maker's cuts of instrument. The two-thirds size cut represents the instrument closed; *1* shows the muscle hook run down to be inserted beneath the freed muscle; *2*, the small size of the instrument when closed; *3*, the tuck in full view ready for sutures.

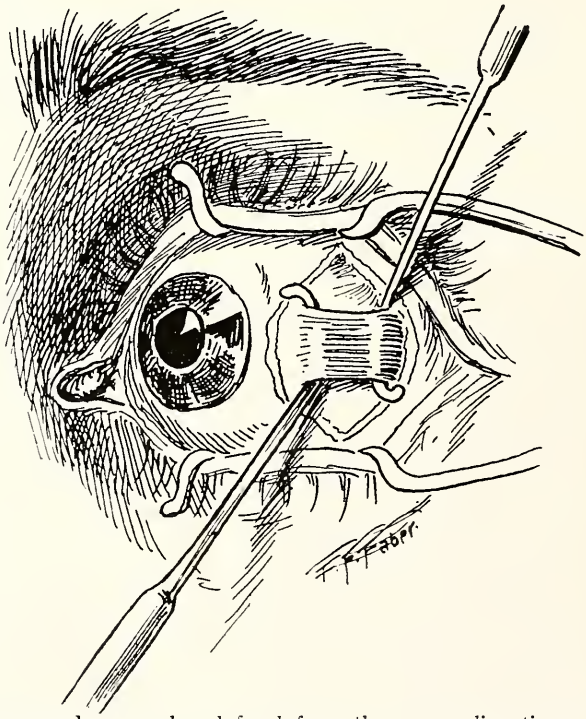

Fig. 2.—The muscle exposed and freed from the surrounding tissues, with strabismus hooks beneath.

line, the parents usually "know" nothing can be done about it till the child is older, and herein lies the tragedy.

The condition usually becomes manifest in the preschool age. Perhaps the child has had some weakening sickness which the parents think has "settled in his eyes." Or the condition may be noticeable only when the child is tired or embarrassed, as when in the presence of a stranger. Often beginning thus as an occasional condition, the squint usually becomes constant if left alone. The child grows as other children, and is happy in his complete absence of self-consciousness. Often some well-meaning friend advises the parents to wait till the child is old enough to go to school before seeking relief. So, perhaps glasses are purchased for him about the time he starts to school. If the treatment begins and ends here

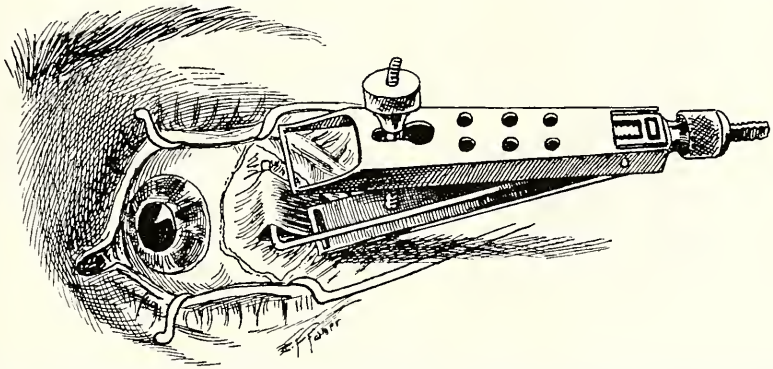

Fig. 3.—The hinged wings opened so that the cross-bars at the lower end are about 5 mm. apart. The muscle hook run down and passed beneath the muscle.

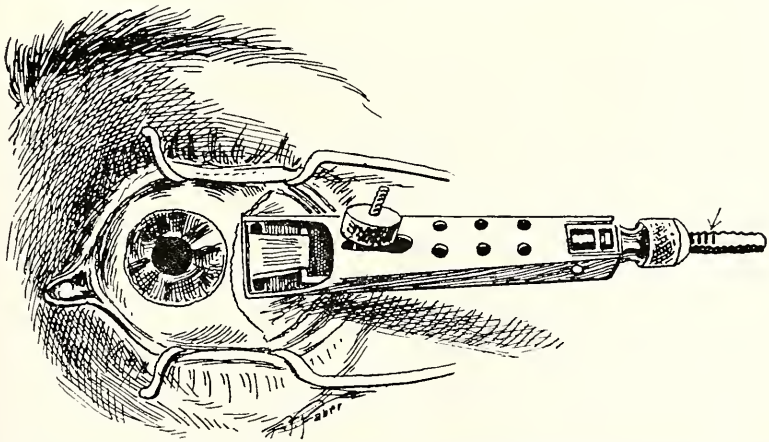

Fig. 4.—The tuck drawn up and the jaws of the instrument approximated by turning the small nut at the side.

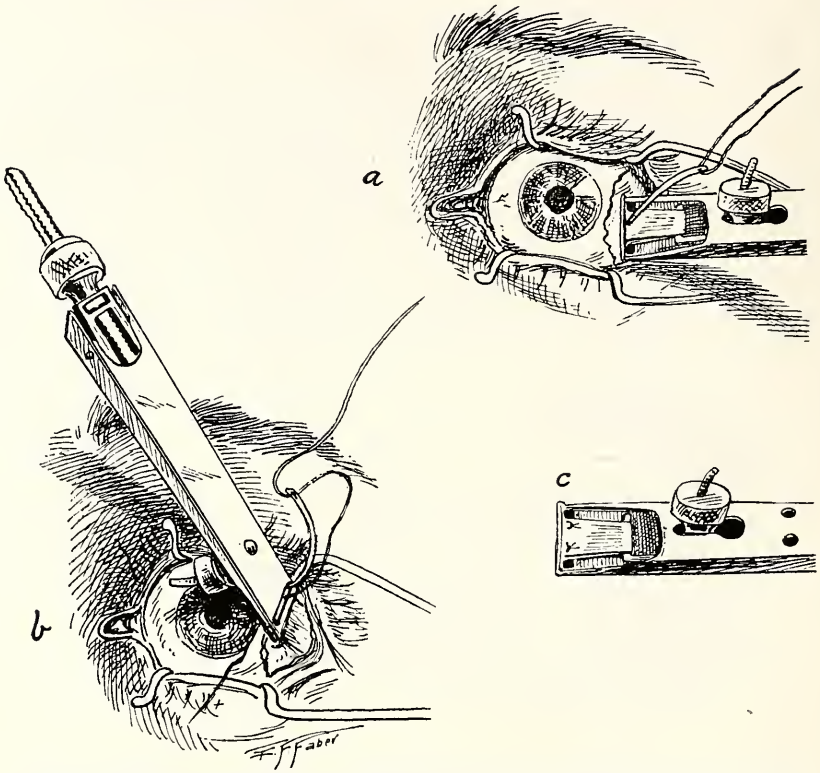

Fig. 5.—Insertion of the sutures: *a* shows the needle being inserted above the cross-bar from the front; *b*, the needle being carried back to the front through a slot at the back of the instrument near the upper edge of the muscle; *c*, the sutures tied in position.

the child will continue to squint ninety-nine times in a hundred. The treatment has started too late and has ended too soon.

As time goes on the child becomes conscious of the fact that his crossed eyes make him conspicuous; he becomes sensitive as to his deformity and develops a sort of inferiority complex. Perhaps this is the reason so few thus afflicted enter the professions. Certainly these children are the mental equals of other children and it is the duty of the medical profession to retrieve them insofar as possible.

It is imperative that these cases be reached early in life. To do this it is necessary to enlist the interest and cooperation of the family physician.

Squint is a condition in which the visual axis of one of the eyes deviates from the correct position of fixation; but this only partly states the case. In addition to this most obvious fact, a definition of this condition should take into consideration the following conditions:

1. A defective fusion faculty.
2. Amblyopia, or poor vision in the deviating eye, which is usually acquired soon after squinting begins.
3. Some form of eye strain, such as farsightedness.

When a person with properly coordinating eyes looks at an object, there is produced on the retina of each eye a similar impression of that object. These images are conveyed back along the optic nerves to the brain centers, where they are *fused* into one image. This fusion faculty

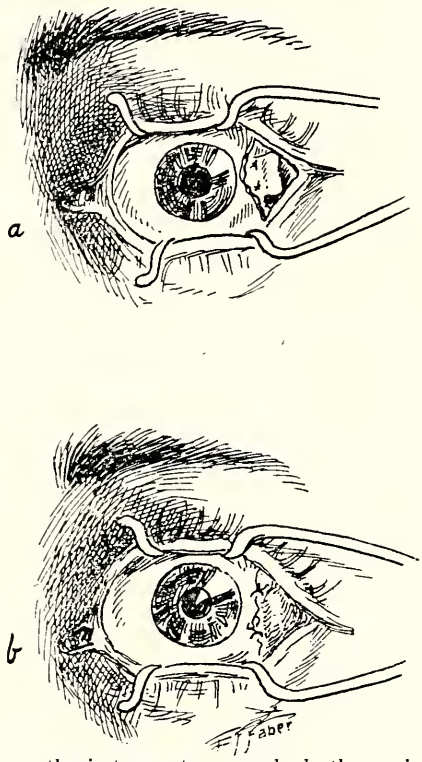

Fig. 6.—*a* shows the instrument removed; *b*, the conjunctiva closed.

is developed early, usually to some extent at the end of the first five or six months of life, and is probably fully developed by the end of the sixth or seventh year, and in but rare instances can it be developed after this time. Conditions necessary to fusion are that objects shall be seen with reasonable clearness, and that images of objects looked at shall fall on corresponding points of the retinae of the two eyes—that is to say, the eyes must each look straight at the object. The tendency to fusion, the desire for binocular vision, is normally so strong that it holds the eyes in line, even though the extraocular muscles are not perfectly bal-

Figure 7

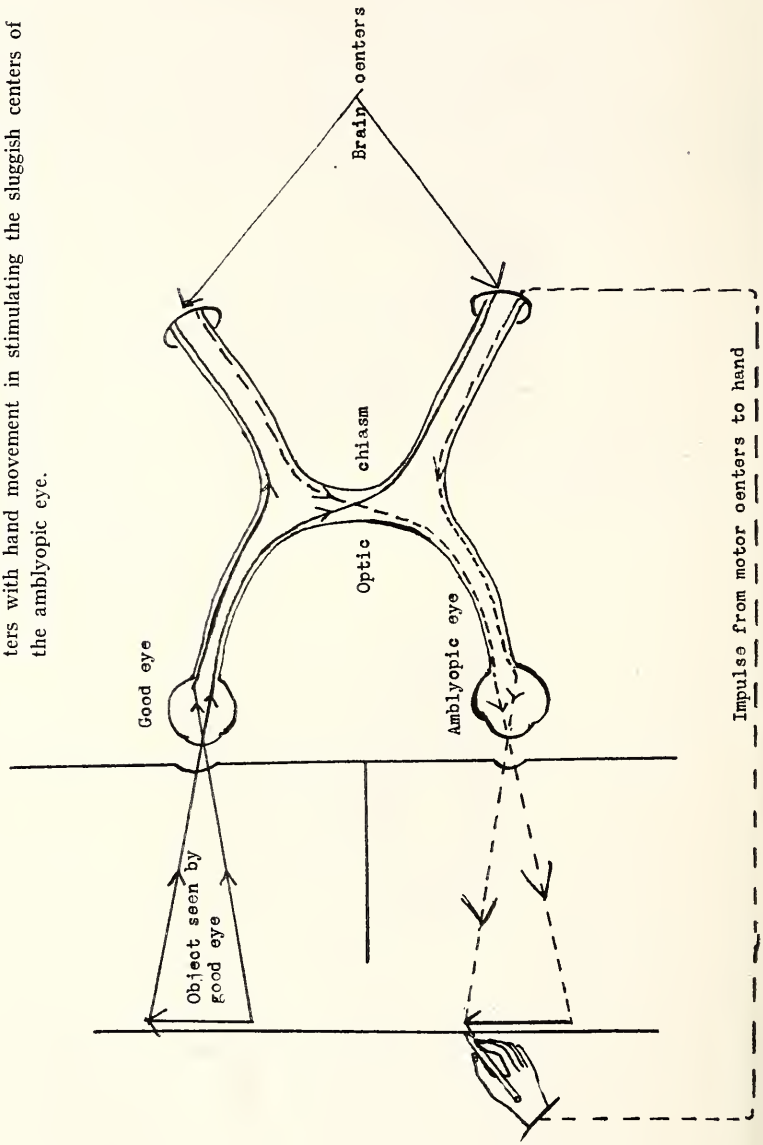

Fig. 7—Illustrating method of combining the active visual centers with hand movement in stimulating the sluggish centers of the amblyopic eye.

anced. In fact, but few persons at any time have perfect muscle balance. So it is not the equal pull of a perfectly balanced set of extraocular muscles, but fusion that holds the eyes in line. Just as gravity is the force that holds all movable objects in position, so fusion is the force that keeps our eyes straight. If one can imagine the confusion that would result on the face of the earth if the force of gravitation were withdrawn, then it will be possible to envision the condition of the eyes of the human race and of all animals having binocular vision if the power of fusion were eliminated. Everybody would be cockeyed. While the normal condition is for a child to have a fusion faculty so strong that it will hold the eyes in line, in spite of an unequal pull of the extraocular muscles, there are cases in which the fusion is relatively weak. In the presence of a weak fusion faculty a squint may result from any weakening condition, as whooping cough, or violent emotional disturbance such as convulsions.

By amblyopia we mean poor vision. If a child one of whose eyes has been crossed for a short period of time be examined, it will usually be found that the deviating eye is amblyopic. This poor vision results from a suppression of vision in the deviating eye. If the crosseyed child were to see clearly with both eyes, all objects looked at would appear double, for the simple reason that the images would not fall on corresponding points of the two retinae. Nature abhors a double image, therefore she begins at once to suppress the image in the deviating eye. The younger the child, the more rapidly and completely does the eye lose the ability to see. A child a year old or younger may lose almost completely the power of fixation within two or three months. In children two or three years of age the time required is longer, but the ultimate outcome is no less certain.

The refractive error present in most cases of squint, especially of the convergent type, is hyperopia, or farsightedness. In order for the farsighted person to see distant objects clearly he is compelled to bring into action the focusing apparatus of the eyes. This act of accommodation is not required in the normal eye except for near work. In doing near work, it is necessary also to converge. Thus accommodation and convergence, acts always required for near work in normal eyes, are closely associated. Consequently, it is most natural that when a farsighted person accommodates to see distant objects there is a tendency for the eyes to converge, especially in the presence of a defective fusion faculty. Therefore, squint is more than deviation of the visual axis—it includes amblyopia of the deviating eye, poor fusion, and a refractive error. Important advances have been made in recent years in the treatment of these conditions. Only a few years ago, everyone advised parents to wait until the child was of school age before attempting to get relief. We know now that to pursue this policy is to lose the golden opportunity. It is comparable to advising a patient with chancre to wait for the tertiaries before starting treatment.

While the general practitioner is not especially concerned with the treatment of squint as carried out by the oculist, it may be of interest

to him to mention here, in a general way, some of the more important steps that must be taken in the management of these cases.

First, it is necessary to learn the exact status of the refraction. To do this it is necessary to use a one per cent or a one-half per cent solution of atropine sulphate. This is instilled three times a day for one or two days before attempting refraction, and the proper lenses are prescribed. If the child has an amblyopic eye, the good eye is occluded in order to compel him to use the amblyopic eye. If worthwhile results are to be obtained in retrieving the amblyopic eye, it is imperative that this treatment be started early, preferably by the time the child is one and a half or two years of age. When the child is three or four years of age, fusion training is instituted. In other words, we first seek to develop visual acuity, then a little later to develop fusion. In a certain percentage of cases, surgery is indicated to relieve the excessive imbalance sufficiently to enable a developing fusion to make parallelism complete and permanent.

At what age should these patients be referred to the oculist? Just as soon as it is definitely determined that squint is present, and if in doubt, give the oculist the responsibility of the decision. The practitioner should insist that the child be carried at once to one who is in position to carry out every detail of the treatment, including correction of the refractive error, retrieving the amblyopic eye, training fusion, and when necessary, intervening in a surgical way to bring the muscle balance within bounds so the gap may be filled in by fusion. The responsibility should be placed at once on the shoulders of the one who is to treat the case. I know of few more distressing experiences in the practice of ophthalmology than to be compelled to inform a mother that her child is permanently and almost completely blind in one eye, due often to her neglect. I realize that many of these parents would have refused to come sooner even though someone had risen from the dead to warn them. I appreciate the fact, also, that many parents do not consult their family physician in regard to these cases. But much may be done by the family physician, who should entreat the parents to forego any preconceived idea they may have as to when to seek relief and to begin treatment while the child is young. In this way the physician can do a real service to a large number of those who entrust their health to his care.

THE NEED OF A CAREFUL DIAGNOSTIC STUDY AND A BETTER UNDERSTANDING OF THE NERVOUS AND MENTAL CASE

Archie A. Barron, M.D., F.A.C.P., Charlotte, N. C.

(Read by title)

It has been my observation over a period of years that the ideal clinician as a type is not often encountered. In the progress of medicine during the past twenty-five years diagnostic procedures have been multiplied to the extent that one is often submerged with diagnostic data, etc., that we

lose sight of the patient as a whole and fail to relate our diagnostic information to the body complex. Perhaps nowhere in medicine is this more true than in the survey of the nervous and mental case.

In the minds of many there seems to be great mysticism about the study of diseases of the central nervous system. This in part at least can be attributed to the over-enthusiastic and sometimes eccentric psychiatrist. The practice of neuro-psychiatry is the practice of medicine. In no other field of medicine is there more demand for common sense or good judgment.

It is necessary to acquire insight into the role that the mind plays not only in disease but in health. We are making efforts to fill a very important field in the prevention of many nervous and mental cases by the wise guidance during the years of development and fitting the environment to the person. A word of warning and advice here I consider wise. We must be careful in our eagerness and enthusiasm not to make an already unstable individual more unstable, not to make one conscious of an unknown existing weakness or more conscious of a known existing weakness. We must be careful in our desire to teach the young in regard to sex matters not to stimulate or arouse unhealthy thoughts.

In the study of the causes of nervous and mental diseases we must consider numerous factors. We must think not only of organic diseases, infections, toxic and metabolic disturbances, but we must take into consideration intellect, personality, environment, etc. This involves one's entire family, and various phases of community relationship, difficulties encountered in meeting and adjusting to the more important and complex situations in life. We must be able to visualize and correlate our findings and, in our therapeutic measures, act accordingly.

We may have nervous and mental diseases occurring in or as a result of an organic disease, or they may occur where there is no demonstrable pathology. It is necessary, therefore, to consider nervous and mental disorders from a psychological, psychopathological and biological viewpoint. Not unlike many other diseases, some cases can be cured, some helped and some are hopeless.

In view of the fact that over one-half of all hospital beds are occupied by nervous and mental patients, the apparent lack of interest in the study of these diseases is a reflection on our intellectual ability, knowledge and mental progress.

In some 13,000 neuro-psychiatric studies in the past fifteen years, I have observed the majority of the organic and functional diseases, the mental defective, the psychopathic, the psychoneurotic, the psychotic, and epileptic constituted a large number. Time does not permit any detailed analysis. It is not my purpose to go into any academic discussion, but I do want to refer rather at random to cases that fall under some of these headings. These should be of popular interest because of their frequency. Maladjustment arising from a variety of causes was a dominant factor in the production of disability in a large number of cases. This

was true of certain defectives, particularly the higher grade defectives, the moron in its higher classification (and many useful citizens are morons), and the psycho-neurotic. This was strikingly emphasized after the late war in an effort at training the ex-service men for various vocations unsuited to him. It is daily occurring in civilian life in numerous children, unhappily situated women, and men. The present depression affecting social status and environment is swelling the ranks.

In my case reports it is my desire to discuss chiefly the so-called functional case, but before so doing, I wish to mention a few organic cases in which the mental symptoms dominated to such an extent that the organic disability had not been recognized or considered as a separate factor. Three cases had been considered as mental defectives when, as a matter of fact, they were not defective at all in the true sense of the word, the mental retardation being due to a previous encephalitis. A boy twelve years of age failing in his school work was considered a mental defective but examination revealed a pituitary tumor. A woman who had had diabetes and had been sugar free for sometime, and considered to be in good shape from this standpoint, had become rather excited, agitated and mentally disturbed for some while. Institutional care had been advised. Examination revealed a rather marked hyper-glycemia, a blood sugar of .60. Insulin and suitable diet relieved her mental symptoms.

We are all familiar with nervous and mental symptoms occurring in pellagra and pernicious anemia. I wish to emphasize that these symptoms are a part of the primary pathology and not the results of disease. We should remember that emotional instability and hysterical-like symptoms are early manifestations in some cases of multiple sclerosis. Mental symptoms in brain tumors are not uncommon. Such symptoms are not seen in just the frontal lobe tumors. Just recently a patient was examined, he was disoriented at times, had marked memory defect, somewhat apathetic in appearance. He had petit-mal like seizures with hallucinations of smell, and other findings indicative of a temporal lobe tumor confirmed by operation. I would like to mention also three cases of paresis due to syphilis of the central nervous system that under proper treatment have been able to return to work, two cases of epilepsy relieved for a long while from attacks by injection of air in the brain (encephalogram).

It is rather difficult to make a case report of a nervous and mental patient and portray its seriousness.

The following case represents a rather serious condition brought about as a result of fear. A boy thirteen years of age had an illness extending over a period of several weeks just preceding his school examinations. He had always made excellent grades, but on these particular examinations he did very poorly. He was severely reprimanded by his father. As a result he became very nervous, exhibited tremors, particularly of hands, and various athetoid movements of hands especially when he tried to perform any act necessitating use of same. When being observed these were increased. Complained of weakness of right arm. A study of his

case revealed a serious-minded, conscientious youngster, a high-strung, exacting, neurotic father, and a meddlesome and nagging grandfather. This boy's symptoms represent a fear reaction. Treatment necessary was education, reassurance, readjustment of home environment and light sedatives. This boy had to spend several months away from home and missed several months of school work. The consciousness of this weakness will undoubtedly show lasting results as he already possessed a neuropathic makeup.

The two following patients represent child problem cases.

A boy ten years of age was seen because he was not doing well in school. He was not keeping up in his work. His teacher had difficulty in keeping his attention. He was nervous and restless, complained of frequent headaches. At home, he complained of choking sensation at mealtime. The boy was well nourished, showed no physical defect and was mentally normal except for being effeminate and rather selfishly inclined.

Analysis of his case revealed that he was an only child, very much petted and spoiled at home, liked to read, did not care much about playing with other boys, frequently at school got into difficulty with other children, complained of his playmates picking on him. As a result did not like to go to school. He was the sole outlet for his mother's emotional life. As a result of his symptoms he had been under a pediatrician for some while, had had his tonsils removed, sinuses examined for headaches—all without avail. The boy's behavior was purely defensive. At school he was in constant difficulty with the children. He complained of headache and choking sensations as an excuse to stay away from school. This was verified by placing the boy in hospital and separating him from his parents. His headaches were completely relieved and choking sensations disappeared. While this relieved the immediate symptoms, the future welfare and development will depend upon parental education and an effort toward readjustment of his social relationships.

A schoolboy fourteen years of age was seen complaining of general weakness, frequent dizzy attacks and shaky spells. His physical makeup was essentially negative except slightly undernourished. Mentally he was indifferent and somewhat antagonistic. However, he could carry on a very intelligent conversation and his insight was apparently very good. His knowledge was in keeping with his age. Analysis revealed that his mother was very emotional and nervous, his father very stern and positive. He could always go to his mother and secure sympathy after correction by his father. His father reported that his boy seemed to do well as long as he did not have to go to school or when allowed to work around store. Got along well with his playmates so long as he could direct, but as soon as he was displaced or did not appear in the limelight, he would begin the above complaints. This boy had had numerous physical examinations, and had been treated in various ways without avail. Examination at this time failed to reveal any particular defect. He presented a rather difficult problem. He had probably reached the height of his intellectual

level in school. His mother's emotion and sympathy had badly spoiled him. The lack of cooperation between father and mother invited mental conflicts. Parents were advised that it would be wise to place the boy in a boys' camp away from home environment, and that it would be necessary for them to have a more cooperative attitude.

The following case represents a type frequently seen, and if managed correctly marked benefits obtained.

I appreciate that there are a certain number of nervous women with pathological conditions that when relieved by surgery are afforded relief from their nervous symptoms. Some 60% of my private neuro-psychiatric cases are women and many have had abdominal operations. The majority are continuing to suffer with the same symptoms they had prior to operation.

A woman 38 years of age was seen with numerous complaints, complained of indigestion, pain in her back, being depressed, feeling weak, restlessness, insomnia. She had had one abdominal operation and had come very near to having another. I saw her at the request of a surgeon who recognized that there was no surgical pathology. Physical examination revealed a very well nourished woman, slightly sallow with a blood pressure of 110/80, with no evidence of any organic disease of gastro-intestinal tract, heart, lungs or kidney. No evidence of any organic neurological disturbance, no evidence of any glandular trouble.

Mentally, she was a rather intelligent woman, somewhat depressed, introspective, her symptoms were fairly well fixed. She was rather listless, seemed to have a fair insight, her memory was good and no evidence of psychosis. Her home life had not always been pleasant although she had not been mistreated. She and her husband had been living with her mother-in-law. She had always wanted a home of her own.

Analysis of her case is easy. The initial cause was her unhappy home surroundings. She was unable to adjust herself to living with her mother-in-law. This led to a moderate depression followed by a group of nervous symptoms. Relief from her home surroundings was easy, but her psychoneurotic symptoms had become fairly well fixed. She had become mentally sick and self-centered. For her relief it necessitated six weeks in the hospital.

A woman 44 years of age was seen with complaint of pain in her head, pain and drawing sensation in her neck, pain in abdomen and aching in back, at times very despondent.

Without anything in history particularly indicative of a toxic thyroid, she had had a partial thyroidectomy three years previous, two years ago curettement, one year ago tonsils removed. She had a rather definite astigmatism and had had numerous glasses fitted. Her menstrual periods were regular but somewhat free. She had a retro-displacement—wanted her uterus removed. Physically she showed no particular abnormality. Mentally she was a rather intelligent woman, but a self-centered, fault-

finding, antagonistic individual, very selfish, sensitive, and emotional but not psychotic. She had a depressed, self-centered, neurotic husband.

A man when first seen was 28 years of age. He was a teller in a bank, working rather hard with long hours. He began to get somewhat nervous, suffer with inability to sleep, inability to concentrate, and at times shaky. Gradually a tremor on voluntary use, particularly of right hand when writing in the presence of anyone, developed. He finally was unable to write or sign his name in the presence of anyone. He became very introspective, developed phobias of going certain places, had all kinds of obscessions about filth and became totally disabled but not psychotic. He was physically sound.

There are a group of symptoms that, when found present in an individual, we call hysteria. Broadly speaking, hysteria is a more or less unconscious effort to escape from an undesirable situation. Sometimes, especially in compensation cases, the question of differentiating between hysteria and malingering is a pertinent one. Just recently I saw a woman for an insurance company who had been drawing $100.00 per month for three years as the result of a presumable hemiplegia. Examination revealed a woman who refused to make any attempt to use her right leg. When she walked with the aid of crutch, she dragged her leg in the manner characteristic of a hysteria. She showed absolutely no wasting of extremities although she said she had not used same for three years. She complained of diminution of pain sense, hypalgesia, of entire right half of body. There were no pathological reflexes—all being absolutely normal. Her blood pressure was normal, eyegrounds showed no evidence of arterio-sclerosis. Analysis of case: Previous history showed that she had had a nervous breakdown when fifteen years of age and at that time had a paralysis of her right side lasting for several months, always a rather serious-minded, easily affected, sympathetic individual. Some two weeks before paralysis occurring three years ago her daughter gave birth to an illegitimate child, her husband had been out of work for a good while, had never displayed much initiative or ability. It was inconceivable that a leg could be in disuse for three years and not show some wasting. Because of this, and other negative findings, an opinion was expressed that she probably had a hysterical hemiplegia and that there was an element of malingering. This was more or less confirmed by information that she had been seen to move limb on one or more occasions.

A boy nineteen years of age was admitted to hospital with hysterical aphonia. His father reported that his boy had not been well since receiving a head injury some eighteen months previously. On questioning him, it was learned that two weeks prior to examination they had consulted a lawyer and that, after this consultation with lawyer, boy became unable to talk. On examination boy appeared more or less listless, facial expression rather fixed, refused to talk. The orderly was called, his genitals were seized, and remark was made to the orderly that the only way to cure this patient and allow him to speak again, was to amputate his penis. This

remark was made in a very serious manner. The orderly was told to have tray ready including sharp knife for next morning, that the operation was a serious one. The boy was left for night. On returning next morning, his penis was seized, rather quickly he was asked, "What did you say your name was," and he replied immediately, "William Handley." From this time on, he continued to talk.

As a rule, there is not much difficulty in differentiating between a real hysteria and a malingerer. Anxiety undoubtedly is the most common symptom of all the neuroses. There is a decided difference between basic anxiety or fear and a superimposed anxiety for gainful remuneration.

In the psychogenic or so-called functional case a diagnosis should not be made by exclusion. A careful physical examination of course is necessary. A real psychoneurotic with his mind fixed on some one organ cannot be cured by informing him that that organ is normal. His symptoms are just as real and in a manner just as pathological as a cough is in a lung condition and pain is in the ulcer of the stomach case. In the treatment of the psychoneurotic, and I am now speaking of the depressed neurasthenic type, and as previously stated, the patient is somewhat depressed, self-centered, rather emotional, with fixed complaints, at times various phobias and somatic disorders. The patient is living within himself, and has no interest in the outside world. Rest in the mental and nervous case must come through some form of diversion. This rest is just as essential as bed rest is to tuberculosis, liquid diet to an ulcer of stomach, or a cast to a fractured bone. We must remember that imagination is usually apprehension, and like worry, is a symptom of mental sickness. In all neurasthenics, including the sex neurasthenics, the old adage "Misery loves company" is pathological. Nothing gives these more delight than to talk of their troubles. Their mind is focused on their complaints and treatment should distract, rather than attract. For diversion the patient must have some outlet or occupation. This creates new interest and allows relaxation. Education is a big factor—cooperation and control are essential. In the acute case, and in the majority of the chronic cases, the patient should be separated, at least for awhile, from his home environmen and sympathizers. Recently, insulin has become very popular in some of these cases because of its apparent mental stimulation and its effect on appetite.

One of the most difficult conditions to handle in neuropsychiatry is the psychopathic personality case. These people are not mental defectives. We mean an individual who is ill-equipped from birth to meet the demands of his environment. This effect is not like that found in mental deficiency which involves primarily the intellectual assets of the patients, but a defect consisting of an apparent constitutional lack of responsiveness to the social demands of honesty or truthfulness or decency or consideration for others. These individuals are emotionally unstable, they are usually not to be relied upon, are impulsive and show poor judgment. Not unlike mental defectives, however, there are many degrees of psychopathics, and

they are rather numerous, frequently intelligent. They constitute the group that are often in trouble, the social misfit. At times, they become psychotic.

A girl student, single, nineteen years of age, was seen because of her previous history and also the fact that she was not doing well in school. Her history was rather complicated. It had been accepted and believed, possibly true, but doubted in view of subsequent happenings, that when she was a young child, age about ten, and for several years afterward, that her father had had frequent intercourse with her. Examination revealed a somewhat obsese, slightly myxedematous type of woman with a rather empty facial expression and one who carried on a useless type of conversation without much feeling or effect. At first it was rather difficult to engage her in conversation. She was somewhat antagonistic and at times resentful. Characteristic of not only this type of case, but of many psychic cases, after her confidence had been gained she readily and apparently with some degree of pleasure talked about her sex life. She told of her father's abuse without much feeling or effect. She later implicated her brother whom she said had approached her on a good many occasions and on two occasions recently had had intercourse with her. Continuing the conversation she reported that another brother had approached her. She did not know why she had allowed her brother to have intercourse with her. Without showing any feeling or effect she said she resented it, that her brother's reason was, as he expressed it to her, that she was in the need of a male companion at times.

This case presents a picture of a constitutional psychopathic individual. She has been a misfit and has reacted in an inadequate way to every situation met. Sexual disturbances are quite common in this group. At the present time she is evidently not psychotic. She has had no outbreaks of mania characteristic of the manic depressive case, but her make-up, reactions, and attitude, lack of insight, and flattening of emotional tone are certainly suggestive of a Schizroid constitution. No doubt unless something can be done she will become psychotic, a dementia precox.

Here is a man 45 years of age who had been presumably a very good citizen and made a very good salary until some two years ago. He had been a rather active church worker, looked after his family well. About two years ago he began to get careless about his work, was indifferent at home, stopped going to church. In other words he had a complete change of personality. Because of his mental status, his associates became poor, began drinking whiskey, had various altercations, was confined in jail on several occasions. This man apparently showed no insight or judgment. So long as he was locked up and had no contact with society he got along fairly well, but his appearance on these occasions was one of apathy. An opinion was expressed that he was a dementia precox, possibly a psychopathic individual and a social misfit. The Clerk of the Court ruled that he was sane and refused to agree to commitment to insane institution. After another behavior episode, he was locked up and Clerk of Court

consented, but for some reason he has been turned loose on society, and I understand is again behaving as before.

The two most common types of psychoses with which we have to deal are the dementia precox and manic depressive types with which I feel we are fairly familiar. As we know the dementia precox usually occurs early in life and the personality makeup furnishes valuable information. It tends to develop in persons with a shut-in, seclusive type of personality often on the basis of mental conflicts, faulty habit formation and instinctive mal-adjustments extending back to early childhood and adolescence. This is the most serious of all insantities, but some cases are hopeful and some should be prevented. We have to recognize four types:

The simple, the hebephrenic type, the catatonic and paranoid.

The chief difference between a paranoid dementia precox and a case of paranoia is that in the precox the delusions are on a comparatively low intellectual emotional level. In true paranoia the construction and logic of the delusional system are on a higher plane and the mood reaction is completely in harmony. The manic depressive case may recover from the acute disturbance, but it may recur even after years. Melancholia, occurring usually in mid-life, is the type in which suicide usually occurs.

In closing I wish to refer briefly to the neuroses and psychoses following head injury. It is my opinion that the majority of supposed neuroses following head injury are organic in character. In head injuries occasionally a psychosis or insanity follows. Not infrequently latent or quiescent cases of manic depressive insanity and dementia precox are made active by head injuries, therefore a patient's history is very essential. In either event there must be a direct continuity without any intervening period in the development of the psychosis. Occasionally latent cases of syphilis are made active by brain injuries, but, if so, it takes time for the structural change to take place and for the development of the dementia paralytica. Generally several months elapse before the development of insanity. If dementia paralytica is immediately observed, this condition was in existence at the time of injury.

. . . President John B. Wright took the Chair at this time . . .

President Wright: The time has now come for the election of two members of the State Board of Health. We are going to have nominations for these now. We will now hear nominations for the two places on the Board of Health.

Dr. R. L. Carlton (Winston-Salem): I want to nominate a man who has served on the Board for two years, and served well—Dr. S. D. Craig of Winston-Salem.

Dr. D. D. Clark: I would like to place before this august body the name of Dr. L. B. Evans of Windsor. There is not a man in North Carolina who has done more for the medical profession than he has, as far as

fighting out political questions in the legislative halls is concerned. He is a man who is competent and who can do the job well.

Dr. A. B. Holmes (Fairmont): I feel that it is a great privilege we have, to be permitted to select two members for the North Carolina Board of Health. I have in mind a man who needs no introduction to any member of organized medicine. Organized medicine is meeting with difficulties from every side. We need at this time a man who is one hundred per cent for organized medicine. I have followed him in his work. I know he will make us a good member of this Board of Health. I nominate Dr. V. M. Hicks of Raleigh.

. . . Two members seconded the nomination of Dr. Hicks . . .

. . . Two members seconded the nomination of Dr. Craig . . .

. . . Two members seconded the nomination of Dr. Evans . . .

President Wright: Mr. Secretary, will you read the names of the nominees?

Secretary McBrayer: There are three of them: S. D. Craig, L. B. Evans, and V. M. Hicks.

President Wright: Gentlemen, prepare your ballots now for these three names.

I will appoint as tellers: B. A. Hocutt, F. R. Taylor, Eric Bell and Dr. Thos. L. Carter of Gatesville.

Dr. B. F. Royal (Morehead City): I have just come in. I know I am a little late, and would like to ask what is taking place.

President Wright: We have had the program of the General Session down to the election of members of the Board of Health. Nominations are still open.

Dr. Royal: I would like to nominate then, for that position, one of the younger middle-aged men of the State—a man preëminently qualified by nature and by training for this position, and a man, despite the already high character of those in the position, who will still further elevate it. I would like to nominate Dr. W. T. Rainey of Fayetteville.

President Wright: Do I hear a second?

. . . There were two seconds to the nomination of Dr. Rainey . . .

President Wright: Dr. Rainey's name will be added to the list.

Dr. Wm. Jones (Greensboro): I would like to further second the nomination of Dr. Rainey and also that of Dr. Craig.

President Wright: Has everybody voted? If everybody has voted I now declare the ballot closed. We will have the following gentlemen as tellers—Dr. Hocutt, Dr. Taylor, Dr. Bell and Dr. Carter—retire and count the ballots and report.

Dr. C. H. Cocke (Asheville): Mr. President and Fellows: On numerous occasions our Society has had the good fortune and privilege

to be addressed by distinguished members of our profession. Yesterday we heard from the beloved teacher of some of us, and also a distinguished clinician, Dr. McCrae. This morning we had an equally distinguished visitor and fellow statesman in the President of the American Public Health Association, Dr. Ferrell. It is my great pleasure now to present to you another distinguished member of our profession, a man who was formerly President of the American Medical Association, and at present Secretary-General of the American College of Physicians—Dean of the Department of Medicine of Georgetown University, Dr. William G. Morgan of Washington. (The members arose and applauded.)

Chairman Wright: I am sure we will be glad to hear from Dr. Morgan at this time.

Dr. W. G. Morgan: As Lord Dawson said to King George, on the occasion of the presentation of a medal, "Your Majesty, since there is no question of merit, I accept with pleasure and gratitude."

It is always a very great privilege and pleasure to me to be in North Carolina, whether it be to attend a medical gathering, to shoot the quail, or to whip the streams for the elusive trout. I expected today to slip in, unawares and unnoticed, and slip out again. Therefore, this is a surprise to me and a very great privilege and honor, which I appreciate.

I would like to comment upon the report which your State Health Officer and Secretary has just made, by telling you just where, on the list of state medical fraternities, the North Carolina doctors stand, from my observation as President of the American Medical Association, in visiting as I did every state in the Union. But inasmuch as I shall have to, from time to time, visit other neighboring states, I think perhaps it would be only politic for me to say this: That I find the batting average of the doctors of North Carolina compares favorably with that of the great Babe Ruth. (Applause)

You have much to accomplish before the closing hour. Therefore, I am just going to say, from the bottom of my heart, that I do appreciate this opportunity and that whenever a bid comes, in one way or another, either from the man with the gun or the man with the rod, or the man with the stethoscope, it will be my pleasure to accept. (Applause)

President Wright: The thing of final interest to all will be the Tellers' Report.

Dr. F. R. Taylor (High Point): The vote stands as follows: Dr. Rainey, 112; Dr. Craig, 91; Dr. Hicks, 80; and Dr. Evans, 56. One vote was cast for a man not nominated, and the President has instructed me not to read that. There is no majority. It is merely a plurality—Dr. Rainey and Dr. Craig being the two highest.

President Wright: Will you now prepare your ballots, and vote for two of three.

Dr. J. T. Burrus (High Point): I would like to say to this Society that the two names receiving the two highest votes were elected, and I appeal from the ruling of the Chair. If the Chair will permit me to do it I move that the President be instructed now and here to declare those two highest names duly elected.

. . . The motion was seconded and carried . . .

President Wright: I then declare those two highest names elected—Dr. Rainey and Dr. Craig.

The session will now stand adjourned.

. . . The meeting adjourned at 12:50 P. M.

FOURTH GENERAL SESSION

Wednesday Afternoon, April 19, 1933

(Obituary Committee)

The Fourth General Session of the Medical Society of the State of North Carolina convened in the Sir Walter Hotel, Room 331, Raleigh, North Carolina, at two-twenty o'clock, Dr. C. M. Van Poole, Chairman of the Obituary Committee, presiding.

Chairman Van Poole: Gentlemen, as has been the custom for many years, we have met this afternoon to pay a last tribute of respect to our fallen comrades in the profession.

As you will observe, the number of deceased doctors during the past twelve months is unusually large, there being fifty-nine who have passed.

During the year the profession has lost some of her most prominent men, and it is also a notable fact that a number of the heads of our most important State institutions have passed; for instance, Drs. Shore and Anderson. The services of these men were so very efficient and valuable that their places will be hard to fill.

Anything we may do or say here this afternoon in commemoration of such men as Drs. Ambler, Anderson, Alexander, Murphy, Reeves, Shore, Sowers, Speight, Tayloe, Taylor, Templeton, and others, will not, cannot do justice to their memory.

The true worth of a worthwhile medical man is not realized and appreciated until after he has passed off the scene, which is the fault of our imperfect human nature. I think it is wrong. If a man is deserving I believe we should pin a flower on him while he is living and let him know his services are appreciated, and not wait until he is dead and then put them all on his grave.

It is hoped that your eulogies this afternoon may be full and free, for this is your last chance to pay respects to your fallen comrades.

Do you know of any others that I do not have? Do you know any of these who should not be on here? If so please advise me now, as I read.

(A few members came in late.) Gentlemen, we have just commenced and are ready to call the roster. We were requested by the President to wait a few minutes until he and other guests came from the Governor's luncheon, but we have started. Any one desirous of making a remark regarding his friend, as we pass over this list, please do so as we call the name.

DECEASED DOCTORS SINCE LAST ANNUAL MEETING

*Abernethy, E. A. ..... Chapel Hill
*Alexander, George ..... Asheville
*Ambler, Chase P. ..... Asheville (Honorary)
*Anderson, Albert ..... Raleigh (Honorary) Past President
Beckwith, R. B. ..... Fayetteville
*Boddie, Needham P. ..... Durham (Honorary)
Butt, V. R. ..... Bakersville
*Caton, G. A. ..... New Bern
*Council, Jefferson B. ..... Salisbury (Honorary)
Council, Desmond E. ..... Angier
*Crowell, W. H. ..... Whiteville
Davis, J. I. ..... Oteen
*Dixon, Joseph ..... Greenville
*Ewing, J. B. ..... Boonford
Flowe, Frank ..... Kannapolis
*Floyd, R. P. ..... New Hope
*Foard, Fred T. ..... Hickory
Hyatt, Frederick C. ..... Greensboro
*Jenkins, Charles L. ..... Caledonia Prison Farm (Honorary)
*Jones, Thos. J. ..... Lansing
Kernodle, James L. ..... Burlington
*Leggett, Virgil W. ..... Hobgood
*Little, E. E. ..... Statesville
*Lyday, William M. ..... Brevard
Maxwell, J. F. ..... Kinston
McAnnally, Charles ..... Madison
*McCanless, William B. ..... Danbury
*McIntosh, L. C. ..... Henderson
Medford, Sam B. ..... Clyde
*Moore, J. E. ..... Mount Olive
*Murphy, J. G. ..... Wilmington (Honorary and Past President)
Myers, R. W. ..... Fullers
*Norman, George W. ..... Jamestown
Petree, A. L. ..... Greensboro
Plummer, A. L. ..... Denton
Pollock, J. A. ..... Kinston
*Poston, J. L. ..... Statesville
Pritchard, W. B. ..... Faison
*Reeves, A. F. ..... Asheville
*Scott, Charles L. ..... Sanford
Sapp, L. L. ..... Badin
*Shamburger, John B. ..... Star (Honorary)

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*Fellow Medical Society of the State of North Carolina.

*Shore, Clarence A. ..... Raleigh
*Smith, Rogers A. ..... Goldsboro
*Sowers, Jacob L. ..... Lexington
Speight, Joseph P. ..... Rocky Mount
Staley, J. C. ..... Burlington
Stephenson, T. J. ..... Seaboard
*Stevens, Ralph S. ..... Princeton
*Tayloe, David T. ..... Washington (Honorary and Past President)
Taylor, H. A. ..... Stonewall
*Templeton, J. M. ..... Cary
Thomas, Fred R. ..... Winston-Salem
Thompson, W. A. ..... Rutherfordton
*Van Epp, Owen B. ..... Cashiers
*Woodruff, Julian S. ..... Charlotte
Young, J. J. ..... Clayton
Yount, J. H. ..... Newton

DR. ERIC ALONZO ABERNETHY

Dr. E. A. Abernethy, aged 56 years, former physician at the University of North Carolina, died at his home in Chapel Hill, N. C., March 21, 1933.

Dr. Abernethy had been in failing health for some time and retired recently as physician for the University. He was a graduate of the University in the class of 1906. He is survived by his wife and two sons. He was a World War veteran, having served in the Medical Department.

DR. GEORGE ALEXANDER

Dr. George Alexander, 44 years of age, died of a heart attack at the home of one of his patients in Asheville, N. C., Friday, March 3, 1933.

Dr. Alexander came to Asheville in 1913 after making his home for several years in Indiana. He was a graduate of the Medical Department of the University of Louisville and shortly after coming to Asheville associated himself with the late Dr. Karl Von Ruck, an internationally known tuberculosis specialist, in the operation of the Winyah Sanitarium.

In 1914 Dr. Alexander went to Central America where he engaged in the practice of medicine as a specialist for about three years, returning to the United States in 1917 to enlist in the United States army. He saw active service in the medical corps, returning to Asheville. He was a member of the staff of St. Joseph's Sanatorium. He was a Catholic.

Dr. Alexander is survived by his widow.

DR. CHASE P. AMBLER

Dr. C. P. Ambler, aged 60, Honorary Fellow of the Medical Society of the State of North Carolina and noted pulmonary specialist, died at his home, Hilltop road, Biltmore Forest, Asheville, N. C., June 5, 1932.

Dr. Ambler graduated in medicine from Western Reserve University School of Medicine in the year 1889 and joined the Medical Society of the State of North Carolina in the year 1891.

Dr. Ambler was a pioneer in the conservation movement which resulted in the establishment of the Great Smoky Mountain National Park and there is a proposal to name a peak for him. (This has been done.)

He did much toward developing Asheville as a health resort. He was a Mason and a Shriner.

DR. CHASE P. AMBLER

By Dr. Clyde E. Cotton

Dr. Chase P. Ambler was born in Salem, Ohio, November 15, 1865. He was named after Salmon P. Chase, Chief Justice of the United States Supreme Court, who was a close friend of the family. He received his medical degree from the Western Reserve University in Cleveland, Ohio, in 1889. The same year he was recommended by the Dean of the University to Dr. Karl Von Ruck as an assistant to him in his investigation and treatment of tuberculosis. He came to Asheville at once to begin his work with Dr. Von Ruck. When the Winyah Sanitarium burned in 1893, Dr. Ambler returned to Canton, Ohio, and engaged in private practice till 1896, when the Winyah Sanitarium was rebuilt and he returned to Asheville as Dr. Von Ruck's assistant. Shortly after this he severed his connection with the Winyah Sanitarium and engaged in private practice.

He did postgraduate work in New York in 1890, 1892 and 1893, specializing in eye, ear, nose and throat and diseases of the chest. He limited his work to diseases of the chest and soon became widely known as an outstanding specialist in this line.

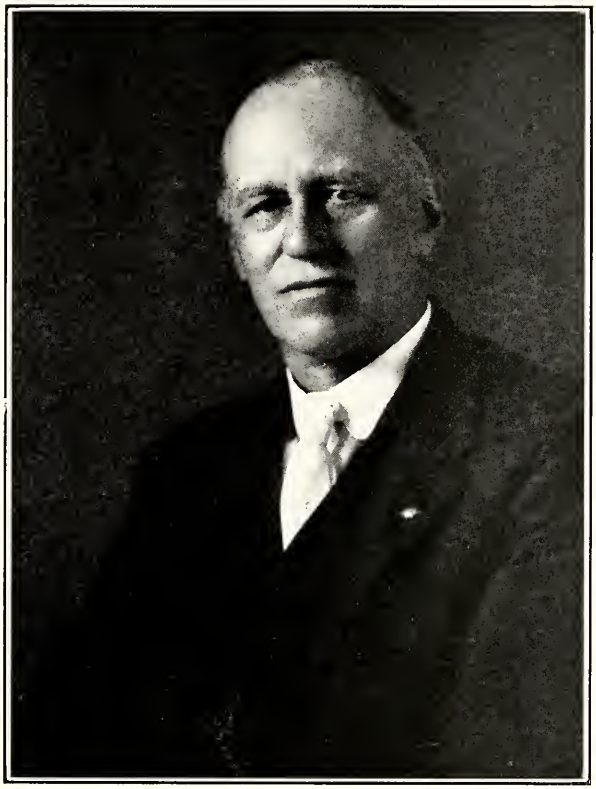
He wrote many articles on the diagnosis and treatment of tuberculosis. On the death of Dr. Frank Meriwether in 1913 he organized a staff of Meriwether Hospital and was its dean for many years.

He was actively interested in St. Joseph's Sanatorium from its beginning in 1900, and when in 1924 a staff of physicians was formed for the Sanatorium, Dr. Ambler was made President of the Staff, a position he held until 1930 when he was elected an honorary President for life.

He was President of the Buncombe County Medical Society in 1903, and in this and subsequent years he with a committee of the Buncombe County Medical Society carried through to a final success a fight for meat and milk inspection and other laws for sanitation and health of the community.

Dr. Ambler was of a strong physical make-up and capable of a tremendous amount of hard work. Besides attending to a large practice he was always interested in civic matters and those things that tended to promote the uplift and betterment of the community and state.

When Justice Day of the United States Supreme Court visited Asheville in 1899, the plan for a National Park in Western North Carolina



DR. C. P. AMBLER

was discussed and Judge Day became an active supporter of the plan. It is probably due to Dr. Ambler more than any other one man the final establishment of the Pisgah Forest Reservation and which gradually led up to the Smoky Mountain National Park. In the last two weeks a peak in the great Smoky Mountain National Park was named for Dr. Ambler.

Dr. Ambler was always very active as a Mason. He was initiated a Master Mason in Canton, Ohio, in 1895. On coming to Asheville he became very active in all Masonic activities. During his long service in Masonary he was elected as Presiding Officer in all the Masonic body both York Rite and Scottish Rite.

In 1915 he was coronated a 33rd and last degree of the Ancient and Accepted Scottish Rite for the Southern Jurisdiction of the United States at Washington, D. C., at the House of the Temple. He served as Illustrious Potentate of Oasis Temple of the Mystic Shrine in 1914, after which he served as High Priest and Prophet for eighteen years.

He was President of the Masonic Temple Company of Asheville from its organization in 1912 until his death. It was to a large extent due to his efforts that the beautiful Masonic Temple in Asheville was erected.

In 1891 Dr. Ambler married Miss Harriet Barbara Vernon of Salem, Ohio. She died in 1918. In 1926 he married Mrs. Daisy D. Chalmers of Asheville. Four children survive by his first wife.

Dr. Ambler was a member of Trinity Episcopal Church.

Victor Hugh, in his declining years and shortly before his death, said, "When I go down to the grave I can say, like so many others, 'I have finished my day's work' but I cannot say 'I have finished my life.' My day's work will begin again the next morning. The tomb is not a blind alley; it is a thoroughfare. It closes in the twilight to open with the dawn. My work is only beginning. The thirst for the infinite proves infinity."

We are confident Dr. Ambler had the same belief.

DR. CHASE P. AMBLER

By John Walter Huston

Dr. Chase P. Ambler, aged 66, died at his home in Asheville, June 5, 1932, after an illness of several months. A leader in medical, civic, and fraternal circles, his life for forty years was bound up with that of Asheville and western North Carolina.

Immediately after his graduation in medicine from Western Reserve University, Dr. Ambler became associated with Dr. Karl von Ruck at the Winyah Sanatorium in Asheville, and began his intensive study of tuberculosis.

In 1893, he returned to his native state, Ohio, to engage in the practice of his profession; but he soon returned, and rejoined Dr. von Ruck.

His success in the treatment of the tuberculous gave him rank among the leading authorities in his chosen specialty.

Dr. Ambler's leadership was apparent in his persistent but successful campaign for health legislation which gave to Asheville milk and meat inspection, together with other health ordinances, at a time when such legislation was unknown to most municipalities.

He was an early, and tireless worker for the Good Roads Association, which was instrumental in opening up the mountain country of the state.

Dr. Ambler was the father of the movement in western North Carolina which finally resulted in the establishment of the Great Smoky Mountains National Park.

For years his vacations were spent in fishing, and hunting for big game, and his love for the outdoors caused him to foster legislation for the conservation of forests, the protection of game, and prevention of pollution of streams.

He found time to take an active and fearless part in every civic matter that pertained to the upbuilding of his community.

After the death of his friend, Dr. Frank Meriwether, Dr. Ambler organized a staff and carried on the work of the Meriwether Hospital, where for years he acted as Chief of Staff, and Dean of the Training School.

In spite of his busy professional life, and many civic interests, he found time to devote to Masonic work, and, in recognition of his leadership, many honors were bestowed upon him by his fellow Masons.

A sanatorium for the care of the tuberculous which would provide desirable environment, and opportunities for the treatment of patients, under the most ideal conditions, had been his dream for years, and became a reality in 1922 when he opened Ambler Heights Sanatorium, which he conducted until his death.

With patients he was firm, and often was considered harsh by those who did not understand him, but not infrequently an unbidden tear betrayed the softness of his heart.

Many patients found in him not only a physician, but a wise counsellor and friend.

The debt that western North Carolina owes to Dr. Ambler is immense —immeasurable. Not only the western part of the State, but the whole of North Carolina, is indebted to him for his constructive work, both as a citizen and physician.

ALBERT ANDERSON, M.D.

Dr. Albert Anderson, 73 years of age, Honorary Fellow and Past President of the Medical Society of the State of North Carolina, died at his home in Raleigh, N. C., October 16, 1932.

Dr. Anderson was born at Eagle Rock, Wake County, and after attending the local schools studied at Raleigh Academy and Trinity College, now Duke University, graduating from that institution in 1883.

DR. ALBERT ANDERSON

Selecting teaching as a career, he went to Middleburg immediately after leaving college and founded the Middleburg Male academy. He remained at Middleburg for four years, during which time he took up the study of medicine. The following year, 1888, he received the M.D. degree from the University of Virginia.

He began the practice of medicine at Wilson and in 1898, with Dr. E. C. Moore, founded the Wilson sanatorium. In the meantime, he continued his advance work in medicine, attending the New York Polyclinic.

Dr. Anderson moved to Raleigh in the year 1907 to become first medical director of the Jefferson Standard Life Insurance Company. He served in that capacity for five years and then engaged in private practice until elected superintendent of the State Hospital May 11, 1913.

Long before being elevated to this position, Dr. Anderson had been a member of the State Board of Health and a member of the State Medical Examining Board. In 1902 he was elected President of the Seaboard Medical Society and also had served as President of the county medical societies of Wilson and Wake and the Tri-State Medical Society. In 1903 he was elected a member of the House of Delegates of the American Medical Association.

The visible marks of Dr. Anderson on professional, political and religious life, were easy to record. He was intensely devoted to the religious causes. He was clever in political life. He was a successful man in business, and he was a pioneer in the treatment of mental diseases. The first mental hygiene institute ever conducted in the state was sponsored by him.

Dr. Anderson had done general practice, had been part owner of a hospital in Wilson and been medical examiner for the Jefferson Life while its headquarters were in Raleigh. After that company transferred to Greensboro he was appointed to the superintendency of Dix Hill and he remained there until death.

In the year 1888, he was married to Miss Pattie Roundtree Woodard, of Wilson, who survives him. They had no children.

In Memoriam

ALBERT ANDERSON, M.D.

By J. K. Hall, M.D., Richmond, Virginia

I come into this solemn assemblage not as one who believes that: The air is full of farewells to the dying and mournings for the dead. All 'round about us at this season of joyous rebirth of nature and of man's hope are multitudinous manifestations of an affirmative answer to the earnest interrogatory of the patriarch of the land of Uz: If a man die, shall he live again? I look upon the faces of my friends, I feel the warmth of the grasp of the hand of friendship, but I live daily in intimate and

inspiring holy communion with the memories and the souls of those of yesterday and of yesteryear. The present is but the projection of the past. Only the dead are immortal.

Whether in bramble, in shrub, in flower, in grain, in grass, in tree—in matter or in mind—the living finds sustenance only in the dead. The great metaphysician and mystic of two thousand years ago was more keenly alive to the transmutations than the most learned scientist of this modern day, and he stated the philosophy in arresting and unanswerable succinctness: Thou fool, that which thou sowest is not quickened lest it die.

Immediately after the death of our dear friend I attempted to record my estimate of his character and to formulate an expression of my affection for him. I hope I may not be charged with unseemly repetition if I should make use again of phrases that some of you may have already read.

Albert Anderson was born on a farm in Wake County, North Carolina, on October 18, 1859. He breathed last at Raleigh in the same county at three o'clock on Sunday morning, October 16, 1932. He was brought a-bed on October 6th, and from that time until the hour of his death the metabolic perversion so narcotized him that he was seldom conscious, and from sleep uremic he passed into sleep eternal. Two days before his death I stood by him, but he could not hearken to me as I called repeatedly: "Uncle Albert." The boatman had already taken him beyond the reach of my voice.

No mother could write judiciously about her dead child; no son about his dead father. Affection warms the heart but it may impair the judgment. For more than twenty years I had known him and for many years he had been my beloved Uncle Albert. But our blood was not akin, and our spirits were not alike. Yet we loved each other. My affection for him increased as the years rolled by, and it became more and more a vital, inspiring, and holy part of my life. I never troubled to make the attempt to estimate his intellectual capacity nor to analyze his character. I loved him, I was loved by him, that was enough. I do not know that he was a great man; nor a remarkable man; but he was an unusual man. I never thought of him as affected by age, nor as having heard the swish of the wing of Death. He was ever young and he was always well.

That critical period known as childhood was lived by him in a region left desolate, materially and spiritually, by the Civil War. He remembered the march of Sherman's victorious and devastating army. His older brothers fought against that army. He was the son of a farmer, and he was one of ten children. Poverty and desolation were their heritage, but not despair. He could not be kept in subjection. In spite of the lack of schools he reached Trinity College, from which he was graduated. Then for four years he taught school at Middleburg, paying in that way for his academic education, and for his medical education later at the University of Virginia. With his older brother he engaged in the practice of

medicine at Wilson. There he married Pattie Woodard, the comely and cultivated daughter of a godly father. She quickened and inspired him, and made him to know his own potentialities, and gladness all the days of his life. Were it proper here to express an appreciation of the living, I should attempt to estimate her worth to him and through him to the citizenship of North Carolina. She continues to bless this community with her presence and her good works. With her help and wise counsel and in association with Dr. E. G. Moore, he established at Wilson probably the first private hospital in North Carolina. The spirit of the pioneer and of the adventurer was in him always. He succeeded always where success seemed always impossible. He was probably the first bacteriologist in North Carolina. As the first Medical Director of the Jefferson Standard Life Insurance Company he was probably the first physician in the State to occupy such a position. He was successful as a general practitioner of medicine.

At the age of fifty-four he became Superintendent of the State Hospital at Raleigh. He was without training and experience in mental diseases, and in the management of a large hospital, but he was deterred neither by his ignorance, his age, nor by the magnitude and the complexity of the work into which he stepped. His spirit and the spirit of the new North Carolina met and embraced each other, and for nineteen years they worked joyously and triumphantly together.

The soul of Dorothea Dix had breathed upon the great oak-covered hill at Raleigh, and had brought into being there the first hospital in North Carolina for the treatment of the mentally sick. Devoted and worthy predecessors had given their lives to the institution; but Albert Anderson transformed an asylum into a modern hospital, and largely in consequence of his vision and his devotion to duty the hospital on Dix Hill is known throughout the country as one of the splendid, efficient mental hospitals of the United States.

He developed with the hospital; it developed with and because of him. From 1913 until the moment of his death the State of North Carolina had no more untiring, resourceful, buoyant, optimistic, loyal, courageous, kindly, democratic, useful, inspiring official. He was urged and inspired and impelled by the spirit of ever-living youth. He was unacquainted with fatigue, pessimism, defeat and despair. He had the physical suppleness and agility of a youngster; he was open-minded, mentally alert, and his hands were always outstretched in constant effort to extend farther and farther the mental horizon of himself and of those around him.

He loved mankind. He was not only tolerant, but charitable, a much finer and rarer quality. He had difficulty in believing that his fellow-mortal could be mean, selfish, disloyal, or vindictive; I have been by him when his motives were impugned and his character assailed, even by some of his neighbors, and his once-thought friends. He winced, he was hurt, but he did not give back—nor did he ever think deep in his heart that they

believed what they had said about him, or that they felt justified in their assaults upon him. In some mystical fashion he was still able to have affection for them. He refused to think poorly or badly of mankind. Like himself, they were all God's children, and they must all therefore be inherently divine.

His devotion to his duties was a passion. Childless himself, the patients in the hospital were all his children. He was democratic in thought and in conduct. He looked neither up to his fellow-mortal nor down upon him. I know not to what extent he delved into modern psychiatric philosophy. He probably cared little about the Oedipus complex, projection, transference, the conception of the schizoid personality and the profounder implications of the cycloid constitution; but he had good sense, an alert mentality, an understanding heart, and a sympathetic soul. He was that most divine gift—the friend of the insane. In North Carolina he succeeded with others in transferring insanity out of the realm of mysticism into the domain of medicine.

At the annual meeting of the American Psychiatric Association in Philadelphia last June I communed with him for the last time. After the night session, as we sat in his room, he handed to me a Gideon Bible, and asked me to read aloud my favorite chapter. Without hesitation I turned to the thirty-eighth and the thirty-ninth chapters of Job. At that late hour —midnight had already passed—his believing soul and my doubting mind were awed by the grandeur and the sublimity of the voice of God Himself. At sunrise the next morning I chided him for fetching me too soon out of sweet sleep. But he begged me to read to him again from the Holy Book. Together we intoned the solemn beauty of the final chapter of Ecclesiastes. He was deeply religious. On the very day before his final illness fell upon him I received a letter from him. Here is a sentence from that letter: I have always felt and prayed for you, that you might be filled with the "fullness of God in all spiritual knowledge and understanding. I believe the account of the origin of man as given in Genesis."

On October 18, 1929, I sat with many of his friends at the dinner on the seventieth anniversary of his birth. Near me sat Dr. Charles O'Hagan Laughinghouse and Dr. Cyrus Thompson. I hope the three have been translated to a land so wholesome that medical degrees are useless and Boards of Health and State Hospitals are unknown. I was in the bosom of each of them. I knew them. I loved them. Faith and hope enabled each to believe with the naturalist-poet:

"Serene, I fold my hands and wait,
  Nor care for wind, or tide, or sea;
I rave no more 'gainst time or fate,
  For lo! my own shall come to me.

"I stay my haste, I make delays,
  For what avails this eager pace?
I stand amid the eternal ways,
  And what is mine shall know my face.

"Asleep, awake, by night or day
  The friends I seek are seeking me;
No wind can drive my bark astray,
  Nor change the tides of destiny.

"What matter if I stand alone?
  I wait with joy the coming years;
My heart shall reap where it has sown,
  And garner up its fruits of tears.

"The stars come nightly to the sky;
  The tidal wave unto the sea;
Nor time, nor peace, nor deep, nor high,
  Can keep my own away from me."

CHAIRMAN VAN POOLE: Any other remarks?

DR. J. W. ASHBY (Superintendent State Hospital succeeding Dr. Anderson): Mr. Chairman, I can't help saying a few words in memory of my chief and, I will say, companion. Like Dr. Hall, I attended medical societies with him and the statements made in the paper he has presented do not call for discussion or criticism. This is simply to affirm that which he has already stated.

It was my pleasure to know Dr. Anderson from 1921 until the time of his death. I was associated with him daily, intimately. I say daily for seldom did he take a vacation during the time I was with him. I can think of only one vacation, only one real vacation did Dr. Anderson ever take from his post at Dix Hill. He felt intensely his work, his life. And as Dr. Hall said, no one thought of Dr. Anderson as anything but youthful, and really this youthful trait and feeling he possessed was somewhat responsible for his death. He had practiced athletics for a good many years; and if you would enter this room now and say, "Dr. Anderson, we do not believe you can stand on your head," he would quickly prove he could. In doing this one day and rolling on the floor, he struck his head. He did not suffer from it immediately except from headaches—headaches he did not confess, headaches no one knew of except his beloved wife. He had, therefore, to take many doses of aspirin for this headache. He then developed what I think was a traumatic apoplexy combined with uremia. It came on slowly and when he was taken sick, he felt, I believe, as Dr. Hall has said that the sting of death was upon him.

Dr. Anderson, like some of the others who have been mentioned here, was born with the advantage of a handicap. He was not born with the proverbial silver spoon. He made his own way in life and his only hobbies were his hospital, his family, and his religion.

DR. R. B. BECKWITH

Dr. R. B. Beckwith, 78 years of age, died in a hospital in Fayetteville, N. C., October 27, 1932.

Dr. Beckwith had practiced his profession in Anson county for many years, but had lived in Fayetteville for the last six years.

He is survived by his widow and four sons.

DR. R. B. BECKWITH, of Fayetteville

Dr. J. F. Abel (Waynesville): Mr. Chairman, I suppose it would be proper for me, as he died in our county, to say something about the gentleman. He was a man I never knew very much about. I don't think he belonged to our county society, but when I first knew him, about fifteen or twenty years ago, he practiced medicine at a place called Tar Hill in Bladen County. He was a man of very pronounced views in anything he thought about but he was cordial and an agreeable old fellow and was pleasant to get along with in every way.

He practiced medicine a few years at that place and I understood he was a graduate of Vanderbilt University. After that, he got into speculation and I think did very well in some things. After several years, he moved to Fayetteville, North Carolina. He had a son and he went into the furniture business and I think that he was engaged in the furniture business when he died.

I frequently saw him on the street, spoke to him, and he was always kind and always had something to talk about. While people differed from him in a good many of his views, at the same time, he was always interesting conversationally. On the whole, I think he was a typical gentleman of the old school.

DR. NEEDHAM P. BODDIE

Dr. N. P. Boddie, aged 73, Honorary Fellow of the Medical Society of the State of North Carolina, died of a heart attack at his home in Durham, N. C., January 26, 1933.

Dr. Boddie practiced in Scotland Neck, Freemont, and in Orange County before locating in Durham. He was a graduate of the College of Physicians and Surgeons of Baltimore in the class of 1883, and joined the State Medical Society the same year.

He is survived by his widow, two sons and one daughter.

DR. NEEDHAM P. BODDIE

By N. M. Johnson, M.D., Durham, N. C.

Born November 5, 1859 in Nash County, North Carolina. Studied medicine at College of Physicians and Surgeons in Baltimore, Maryland. Postgraduate work at Johns Hopkins University about 1897. Began practice of medicine in Elmyra, Halifax County, N. C. Began his practice of medicine in Durham in 1893, and remained in Durham until his death (1893 to Jan. 26, 1933). United in holy matrimony with Miss Lela Sherrod of Martin County, N. C., June 5, 1885.

Direct family of four children, three of which survive. Thirteen grandchildren. Two great grandchildren.

Dr. Needham P. Boddie was steward in Duke Memorial Church and chairman of the Board of Trustees at time of his death. The three greatest things in his life were his family, his Church and the practice of medicine. He died January 26, 1933.

I have practiced medicine side by side with Dr. N. P. Boddie for forty years in Durham, N. C., and knew him to be, all that time, loyal to the members of his profession, in fact, in all duties falling to his lot. We deplore his death as our great loss.

May 5, 1933.

DR. NEEDHAM P. BODDIE

By Dr. R. A. Ross, Durham

Dr. Needham P. Boddie was born in Nash County Nov. 5, 1859, and died in Durham Jan. 26, 1933. He was the son of J. B. H. Boddie and Leah Boddie. He was educated in the schools of Nash County. In 1883 he graduated from the College of Physicians and Surgeons of Baltimore, Md. From this time until 1893 he practiced his profession in Scotland Neck and Fremont. In 1893 he moved to Durham and continued his practice there until the day of his death. In 1885 he married Miss Lela Sherrod of Halifax County, and she, with three children, survive him. He was a devout Christian, a member of the Methodist Church, and for forty years served on the Board of Stewards of Duke Memorial Church.

Dr. Boddie was born of hardy pioneer stock, and was accustomed from his early life in the country, to handle and overcome difficult situations and to meet emergencies. As a young man he was a brilliant student, and so when he began his professional work it was already predicted for him a successful career. He began his practice in the years before there was much thought of specialization and so he soon became a leader in several branches, especially in obstetrics and the care of children. At the height of his career there was probably no man in the state who met and handled more successfully the difficult and trying situations which arise in obstetrics and pediatrics. Trained as he was in early life to meet emergencies and think them through to a happy termination, he met these emergencies in the practice of his profession in the same manner and many persons living today owe their lives to his skill and patience.

As a churchman and Christian gentleman he was always outstanding. There was never a question as to where he would take his stand on all moral and religious issues. For forty years he served his Church on the Board of Stewards and it was a most rare occasion when his seat in his Church was not filled, giving encouragement and inspiration to his pastor on all occasions. His worship at no time was mere lip service, but was rendered in that wholehearted devout manner which led many others to follow his example.

He was a devoted husband and father and gave his life and substance unstintingly to everything which would add to their comfort and happiness.

He has passed to his reward and the pages of history are cleaner, and the profession of medicine is elevated and ennobled because of his life.

DR. V. R. BUTT

Dr. V. R. Butt, 77 years of age, prominent physician of Bakersville, N. C., died at his home at that place November 4, 1932.

Dr. Butt formerly lived in Georgia, but had resided in Mitchell County, N. C., the last thirty-five years. He was one of the most prominent physicians in Mitchell County.

Surviving are four sons and seven daughters.

DR. GEORGE A. CATON

Dr. George A. Caton died of a fractured skull from a fall on his bathroom floor at his home in New Bern, N. C., October 19, 1932.

Surviving are his widow, one son and two daughters.

DR. DESMOND E. COUNCIL

Dr. D. E. Council, 30 years of age, died in his office in Angier, N. C., September 12, 1932.

Dr. Council studied medicine at Wake Forest, North Carolina, and completed his course at George Washington University, Washington, D. C., and served his interneship at Rex hospital, Raleigh, N. C.

Dr. Council located at Angier and was associated with Dr. C. R. Young in the practice of his profession.

DR. JEFFERSON BOSTWICK COUNCIL

Dr. J. B. Council, aged 76, died at his home in Salisbury, N. C., April 21, 1932.

Dr. Council graduated from the College of Physicians and Surgeons of Baltimore, Maryland, in the year 1885 and joined the Medical Society of the State of North Carolina the same year of his graduation. He was a loyal member of the State Medical Society, and for a number of years was an Honorary Fellow of the same.

For many years Dr. Council was a loyal and consistent member of the First Presbyterian Church of Salisbury. He leaves a widow, two sons and two daughters.

JEFFERSON BOSTWICK COUNCILL, M.D.

By C. M. Van Poole and J. G. Ramsay

Dr. J. B. Councill, aged 76 years, died at his home in Salisbury, N. C., April 21, 1932, after a lingering illness of several months' duration. He was of English ancestry, being a son of the late Dr. William B. Councill of Watauga County, North Carolina.

Dr. Councill attended the common schools of the community, and graduated from the Finley High School of Lenoir, N. C. He took his medical course at the College of Physicians and Surgeons of Baltimore, Maryland, graduating from that institution in the year 1885 and took the examination before the State Board of Examiners and obtained license to practice medicine the same year. He immediately became a member of the Medical Society of the State of North Carolina, of which society he was a member until his death, having been an honorary fellow for a number of years prior to his death. He was also a member of the Rowan County and Ninth District Medical Societies, and a former member of the American Medical Association.

Dr. Councill was of the old school of doctors, and from the time he first located in Salisbury he began to build up a lucrative practice, and in his more active days was much sought after by the people in common. During his long years of practice he had acquired a wide knowledge and experience. He was a man of a great heart, and of a sympathetic nature. In numerous ways he had been the good samaritan to hundreds of sufferers.

During his long medical career he had ministered to the suffering, both in body and mind, in every walk of life, of all races, and time after time he realized that there would be no material compensation for his services, but this did not deter him in giving the best medical attention possible to these people, and his acts of mercy and charity were dispensed with the same zeal and effort to relieve as was the case with the well-to-do He was ever zealous in upholding the ethics of the medical profession, and his punctiliousness in this regard was an outstanding characteristic, demonstrating his high ideal for right and honor.

Not only was Dr. Council an able physician, but he was a splendid citizen; a man of the highest character and integrity. During his long professional life in Salisbury he had become a fixture in the community, and had endeared himself to all who knew him.

Surviving are his widow, two sons and two daughters. His mother, Mrs. Alice Councill of Hickory, N. C., also survives, having passed her 100th year some months ago. There are two brothers, W. B. Councill, a former Superior Court judge, and J. L. Councill of Waynesville, N. C.; also one sister, Mrs. Emma A. Taylor of Hickory, N. C.

Dr. Councill was a consistent member of the First Presbyterian Church of Salisbury, and was also a member of Fulton Lodge No. 99, Ancient, Free and Accepted Masons. He was also a member of Salisbury Chapter No. 20, Royal Arch Masons.

DR. W. H. CROWELL

Dr. W. H. Crowell of Whiteville, North Carolina, died of pneumonia at that place February 11, 1933.

No data.

DR. JOHN I. DAVIS

Dr. John I. Davis, 65 years of age, died of a heart attack at Oteen, North Carolina, July 5, 1932.

Dr. Davis was staff physician and specialist for the treatment of tuberculosis at the United States Veterans Hospital at Oteen, N. C., for the last eight years. He was buried with military honors in Arlington cemetery, Washington, D. C.

He is survived by his widow and several brothers.

DR. JOSEPH DIXON

Dr. Joseph Dixon, 68 years of age, prominent Greenville, N. C., physician, died in a sanatorium in Richmond, Virginia, January 21, 1933.

Dr. Dixon received his education at Kings Mountain Academy, the University of North Carolina, and the Medical College of Virginia.

In 1918 Dr. Dixon took postgraduate work at the New York Polyclinic Hospital.

He is survived by his widow, three sons and three daughters.

DR. J. B. EWING

J. B. Ewing, M.D., 74 years of age, died at his home in Spruce Pine, N. C., December 10, 1932, following a serious illness of only twenty-four hours.

Dr. Ewing had been in declining health for two years, but had continued his practice until two days prior to his death.

He is survived by his wife, two sons, and three daughters.

DR. FRANK FLOWE

Dr. Frank Flowe, aged 43 years, of Kannapolis, N. C., died in the Jefferson Hospital, Philadelphia, April 30, 1932, after an illness of several months.

Dr. Flowe studied at Davidson College and was graduated from the North Carolina Medical College, Charlotte, North Carolina.

He located at Kannapolis in 1913 where his practice quickly grew into an extensive one. He was one of the most active and public spirited men of his community and his death saddened many hearts.

Dr. Flowe was a member of the Southern Railroad Surgeons' Association, a member of the Presbyterian Church, a 32nd degree Mason and Shriner.

He is survived by his widow and one daughter.

DR. R. P. FLOYD

Dr. R. P. Floyd, 78 years of age, died at his home at New Hope, twelve miles from Louisburg, North Carolina.

Dr. Floyd was one of Franklin County's most active and popular physicians and a splendid citizen. He represented his county in the legislature of North Carolina in the years 1909 and 1911.

DR. FRED T. FOARD

Dr. F. T. Foard, 78 years of age, one of Catawba County's oldest and best known physicians, died at his home in Brandy's township near Hickory, North Carolina, February 4, 1933. He died of paralysis with which he was stricken only a few hours prior to his death.

Dr. Foard was born in Rowan County in 1855 but moved to Catawba County in the year 1876 where he practiced his profession for fifty-seven years, giving medical assistance in thousands of homes in the community in which he resided. He was a progressive citizen and was, for many years, a member of the county school board.

He is survived by his second wife, three sons and four daughters.

DR. F. T. FOARD

By Dr. J. W. Keener

When I wrote this memorial to Dr. Fred T. Foard, I approached my subject with a certain spiritual confidence and for this reason, if I failed in doing justice to my subject, Dr. Foard's spirit would say all shortcoming, frailties, and foibles are forgiven, for Dr. Foard loved his fellowmen. With this thought in mind I moved to my subject.

Dr. Fred T. Foard was born in Rowan County, September 3, 1855. After graduating from the Charleston Medical College in 1876, he moved to Catawba County in the same year, where he began the practice of his profession. He was married twice, first to Miss Frances Hudson and then to Miss Mattie Nelson Hoover of Lincoln County.

Surviving him are Mrs. G. M. Chapman of Monroe, Mrs. G. R. Penton of Brooklyn, N. Y.; Dr. F. O. Foard of Valdese, Dr. F. T. Foard, Jr., of Santa Barbara, California, and Mrs. H. S. Balch of Hickory Two children died in infancy. From this union with his second wife, who also

survives, are two living children, Thomas P. Foard and May Helen Foard. An adopted son, Dr. C. K. Lynn, is also living.

Dr. Foard practiced his profession for fifty-seven years during which time he kept abreast of medical progress by doing postgraduate work at various medical centers. Truly, we may say, Dr. Foard was a pioneer physician who for fifty-seven years, maintained often without monetary return, the standard of advance in medical science in his community and impressed his high character and integrity upon all who came in contact with him. He was one who enforced the ethical criteria of the profession more by example than by precept, and strove continually for the best interests of medicine. His friendly interest, his wise counsel, his gentlemanly and courteous mein, molded into a lovable and sympathetic nature, won him the admiration, respect, and love of every layman, professional man, woman and child who came into contact with him.

One who combined so harmoniously a keen and scientific mind with such an humble and loving heart will live forever in the affection and esteem of those souls who shall in time follow down the corridors of time. We shall miss him but he has left us a rich heritage that shall be an inspiration and a challenge to our best efforts and thoughts.

No better rule of conduct has ever been enunciated than the one by Henry Van Dyke:

> "Four things a man must learn to do
> If he would make his record true;
> To think without confusion clearly;
> To love his fellowmen sincerely;
> To act from honest motives purely;
> To trust in God and Heaven securely."

It has been my pleasure to have known one who followed well, yea almost to the letter, the rules of conduct laid down by that scholarly and Christian gentleman, Henry Van Dyke—that man was Dr. Fred T. Foard.

DR. FREDERICK CARLISLE HYATT

Dr. F. C. Hyatt of Greensboro, aged 47, died at the home of his father in Waynesville, N. C., July 28, 1932. He had been in ill health for the last five years and his death was not unexpected.

Dr. Hyatt was graduated from the University of North Carolina and from Jefferson Medical College, Philadelphia. He also spent some time at Mount Alto Sanatorium, Mount Alto, Pa., before coming to Greensboro, where he practiced for nearly twenty years. He was the first city health officer for Greensboro. He was pleasant and congenial. He loved his patients and his patients loved him.

Dr. Hyatt was a member of the Methodist Church, a Mason, Shriner, a Woodman, and a member of the Jr. O.U.A.M.

He is survived by his wife, two sons and a daughter.

Dr. A. McNeil Blair (Southern Pines): Mr. Chairman, I feel very keenly that there is not a definite expression of the Society's thoughts in reference to Dr. Hyatt, of Greensboro, whom I happen to know personally. A man of real worth. And his pronounced personality made him a genial host at all times—a participant of the real things of life as well as the good things of medicine, and I think that the Guilford Society should have something prepared for this meeting in reference to Dr. Hyatt. I just happened to be a guest at the Guilford County meetings a great number of times and I know his genial personality and cordial greeting stamped him as a man worthwhile and it seems to me unfortunate that our fellows have let him pass unnoted apparently . . .

DR. CHARLES LEE JENKINS

Dr. Charles L. Jenkins, 68 years of age, Honorary Fellow of the Medical Society of the State of North Carolina, died November 3, 1932, at his home at Caledonia state farm prison where he was serving as physician. He died of a heart attack.

Dr. Jenkins received his medical degree from the New York University Medical College in the year 1890 and began the practice of his profession in Edgecombe County, later removing to Raleigh, N. C., where he practiced until about one year ago when he removed to the State Farm in Halifax County.

He is survived by his wife, two sons and one daughter.

DR. THOMAS J. JONES

Dr. Thomas J. Jones, a practicing physician of Lansing, Ashe County, North Carolina, died since the last meeting of the Medical Society of the State of North Carolina. He was born in 1885, graduated in medicine from the Lincoln Memorial University in 1895, and began the practice of medicine in Ashe County before the North Carolina Medical Practice Act became a law and therefore was not required to stand an examination before the Board of Examiners created thereby. He served the people of his county well and faithfully and leaves a son, a physician, Dr. T. Lester Jones, of Lansing, who worked with him for several years, to carry on his work.

THOS. J. JONES, M.D.
1855-1932

By B. W. Graybeal

"Knowledge is, indeed, that which, next to virtue, truly and essentially raises one man above another"; and, "Nothing is more estimable than a physician who, having studied nature from his youth, knows the properties of the human body, the diseases which assail it, the remedies which will benefit it, exercises his art with caution, and pays equal attention to the

rich and to the poor." These words are aptly applicable to the life and service of Thos. J. Jones, M.D. Also, "He hath borne himself beyond the promise of his age."

In the pioneer days of this mountainous section of North Carolina before the advent of autos and good roads, Thos. J. Jones, M.D., made his weary way through all this country over mud roads and no roads in all kinds of weather in daytime and night-time on horseback ministering to the afflicted and performing many major operations with success. Such are seldom undertaken now outside of hospitals. That was a time when it was impossible to get the patients to any hospital.

Thos. J. Jones, M.D., was cautious in the use of the knife. He was also most skillful, and thus, applied with skill after his diagnosis, he prolonged the lives and alleviated the suffering of dozens and hundreds. This writer is one who owes his present existence to the skill and courage of Thos. J. Jones, M.D., which was applied thirty-six years ago when I was a child two years of age. He removed from my windpipe a grain of corn which would have caused death.

He lived to see a good road built through his community, a railroad built through Ashe County and was instrumental in securing a station at his home town. He was identified with all movements for the upbuilding of the country including telephone lines, roads, railroads, churches, and schools. He was a true Christian gentleman. He joined the Methodist Episcopal Church in early life and lived a faithful devoted Christian.

He was a member of the Independent Order of Odd Fellows, member of the North Carolina Medical Society, and for a number of years and until his death was President of the Ashe County Medical Society. When he wrapped the drapery of his couch about him and lay down to pleasant dreams his remains were interred in a beautiful plot near his home by a host of sorrowing relatives and friends and former patients. He died as all must die, but his good influence still lives and will continue to live in the hearts of his many many friends. 'Tis sad here with the Doctor gone. He is referred to in this sketch as M.D., because we feel that he fully deserved that title both from qualification and in application. Dignity and proportion were observed by him in his every act and his example is a most worthy one for others who aspire to high and lofty ideals to emulate.

Thos. J. Jones, M.D., was born at Clifton, Ashe County, North Carolina, April 23, 1855, and left this vale of tears Dec. 1, 1932. He was the son of Uncle Alex Jones, a tanner of leather. On Feb. 22, 1882, he was married to Miss Rebecca E. Graybeal, who was a daughter of Joseph Graybeal, the owner and operator of a carding machine. Surviving Dr. Jones are his widow, and one son, Dr. T. Lester Jones, and one daughter, Mrs. J. H. Gentry, all of Lansing, N. C., and a number of grandchildren and great-grandchildren.

Thos. J. Jones, M.D., secured his preliminary education in Ashe County schools. In the spring of 1879 he began the study of medicine with

Dr. J. O. Wilcox, a prominent and eminent physician of Dresden, N. C. In the autumn of 1879 he entered the College of Physicians and Surgeons of Baltimore, Md. At the close of college term he returned and practiced with Dr. Wilcox, later locating at Grant, Va., for a while, moving to Lansing in 1882 where he practiced during the remainder of his life. In the autumn of 1894 he entered the Medical College of Tennessee at Knoxville where he graduated in medicine and surgery in 1895. He was granted license to practice medicine about 1882. He joined the Ashe County Medical Society in 1888, State Medical Society in 1904. He was a member of the State and County Medical Societies and President of the Ashe County Medical Society at the time of his death.

May his character, counsels, and examples guide us on and on and on.

DR. JAMES LOFTIN KERNODLE

Dr. J. L. Kernodle, aged 63 years, for many years a prominent physician and business man of Burlington, North Carolina, died of a heart attack at his home at Burlington February 19, 1933.

Dr. Kernodle was a graduate of the University of North Carolina and of the College of Physicians and Surgeons of Baltimore.

He practiced in Alamance County until 1914, when he removed to Greensboro, N. C., later removing to Burlington where, besides his practice, his business interests were wide and varied.

He is survived by his widow, one daughter and several brothers.

DR. VIRGIL W. LEGGETT

Dr. Virgil W. Leggett of Hobgood, North Carolina, died during the past year.

No data.

DR. E. E. LITTLE

E. E. Little, M.D., aged 45 years, a prominent young physician of Statesville, North Carolina, a member of the staff of the Rhyne-Little clinic, died at the University Hospital, Philadelphia, Jan. 11, 1933. He had been a patient in the University Hospital for some time and had undergone an operation for brain tumor a few days prior to his death.

Dr. Little was graduated from the North Carolina Medical College in Charlotte, N. C., in the year 1912 and served an interneship in a Fayetteville hospital. He first began the practice of medicine in his home community in Iredell County. In the year 1928 he removed to Statesville and, with his brother and Dr. Rhyne, established the Rhyne-Little clinic.

Dr. Little was an active member of the Lutheran Church.

He is survived by his wife, two sons and one daughter.

DR. WILLIAM MONROE LYDAY

Dr. William Lyday died at his home at Brevard, North Carolina, August 15, 1932 of cerebral hemorrhage.

Dr. Lyday was graduated from the College of Physicians and Surgeons, Baltimore, in the class of 1885. He was held in high esteem by his patients and friends. His father before him was one of the leading physicians of Transylvania County and he had a brother, A. E. Lyday, who was a physician. The hospital in the town of Brevard where he lived and died is named the W. M. Lyday Memorial Hospital in his honor and now in his memory. He has two sons who are taking a high stand in our profession, Dr. C. E. Lyday of Gastonia and R. O. Lyday of Greensboro.

DR. JOHN FLAVINE MAXWELL

Dr. J. F. Maxwell, 84 years of age, died at his home at Seven Springs, N. C., July 16, 1932.

Dr. Maxwell had practiced medicine in Lenoir County since young manhood.

He is survived by five children.

DR. CHARLES McANALLY

Dr. Charles McAnally of Madison and Asheville, North Carolina, died at Madison July 14, 1932.

He was brilliantly educated and was a son of the late Dr. McAnally of Madison, and was one of six sons to follow in his father's footsteps as a physician.

He is survived by his wife.

DR. WILLIAM VOLNEY McCANLESS

Dr. W. V. McCanless, aged 74 years, died suddenly at his home at Danbury, North Carolina, April 24, 1932.

He had been in ill health for several months. Dr. McCanless was one of the best known citizens in Stokes County, having come in contact with hundreds of people in his practice throughout the county.

DR. LELAN C. McINTOSH

Dr. L. C. McIntosh, aged 59 years, a world war veteran, of Henderson, North Carolina, died in Johns Hopkins Hospital, Baltimore, July 13, 1932, where he had been a patient for six weeks.

Dr. McIntosh was born in Moore County, but had lived and practiced his profession at Henderson, N. C., since completing his medical training in the year 1912. He had been an invalid for the past eight or ten years.

At the outbreak of the World War Dr. McIntosh volunteered his services and went overseas, where he served with distinction in the medical unit of the army. While serving in France he was gassed, which caused a bronchial trouble and a form of paralysis from which he never fully recovered.

Dr. McIntosh was a member of the Baptist Church. He is survived by his wife and one daughter.

DR. L. C. McINTOSH, Henderson

By Dr. James H. Wheeler

Dr. Leland Carson McIntosh, who died on July 13, 1932, was a direct descendant of the famous Clan McIntosh of Scotland. He was graduated from Wake Forest College in 1899, as Bachelor of Arts, and did postgraduate work at the University of North Carolina and the University of Chicago. His medical degree was from Emory University, Atlanta, Georgia. In 1912 he located in Henderson, North Carolina, where he practiced his profession until poor health compelled him to discontinue it.

Dr. McIntosh volunteered and served in the Medical Corps of the United States Army during the World War, as First Lieutenant, Captain and Major. He saw heavy fighting in the Argonne and received a citation for bravery.

After the War Dr. McIntosh returned to his practice, in Henderson. Several years after his return from the War he married Miss Bessie High, who at that time was Superintendent of Nurses at the Sarah Elizabeth Hospital, Henderson, N. C. Two children, Ruth and Leland, Jr., were born to them.

For several years prior to his death Dr. McIntosh suffered from encephalitis, being completely paralyzed and entirely helpless. It may be said, in all truth, that he was a man of the highest character, ethical in his work and generally appreciated and loved by those who knew him. At his request he was buried at the cemetery in Henderson among those whom he had served and loved.

DR. SAM B. MEDFORD

Dr. Sam B. Medford of Clyde, North Carolina, died since the last meeting of the Society.

No data.

DR. J. E. MOORE

Dr. J. E. Moore, 61 years of age, died at his home in Mount Olive, North Carolina, September 15, 1932.

The cause of Dr. Moore's death was cerebral hemorrhage which occurred some days previous to his death.

Dr. Moore had practiced his profession at Mount Olive for the last fifteen years.

He is survived by his wife, three sons and two daughters.

DR. J. GERALD MURPHY

Dr. J. G. Murphy, age 60 years, a prominent physician of Wilmington, North Carolina, and Past President and an Honorary Fellow of the Medical Society of the State of North Carolina, died at his home in Wilmington, N. C., December 18, 1932. The cause of Dr. Murphy's death was pneumonia from which he had suffered for some days.

Dr. Murphy was one of the State's leading physicians, and was also a member of the Board of Trustees of the Greater University of North Carolina. He was a graduate of the University of North Carolina and a graduate in medicine from the University of Louisville, Ky. He did post-graduate work in Baltimore and New York. He was a fellow of the American College of Surgeons, the American Medical Association, and a former member of the Board of Examiners of the State of North Carolina. He was an elder in the First Presbyterian Church of Wilmington, a Past President of the Kiwanis Club.

He is survived by his wife.

DR. JOHN GERALD MURPHY

By Dr. John H. Hamilton

September 18, 1872, marked the beginning, and December 18, 1932, the end of the earthly existence of that beloved citizen of North Carolina —Dr. John Gerald Murphy. His devoted services to his family, his friends, his profession, and to numerous organizations and institutions, endeared him to thousands.

Born in the parental home, "The Oaks," near Atkinson, his boyhood was that of the average rural boy, guided by conventional moral and religious standards. He received his early education at Miss Wright's famous school at Coharie in Sampson County. The University of North Carolina then imparted to him a training which he prized highly and appreciated genuinely. He was awarded the degree of Bachelor of Science in 1901. After a session of school teaching, he became a medical student at the University of Louisville, where he received the degree of Doctor of Medicine in 1903. He was licensed for practice in North Carolina the same year, locating at Kenansville.

After four years of successful general practice, Dr. Murphy took graduate courses at the Presbyterian Eye, Ear, Nose and Throat Hospital

DR. JOHN GERALD MURPHY

in Baltimore. He then removed his office to Wilmington and limited his practice to ophthalmology, otology, laryngology, and rhinology. There he had a large practice from the beginning. Always a diligent student, Dr. Murphy continued to spend a portion of each year at some of the larger medical centers. He was known and respected by most of the leaders of the profession. Many patients were referred to him by the physicians of our largest cities. The friendly and sympathetic understanding existing between Dr. Murphy and his patients was a genuine tribute to the physician and the man.

A firm believer in organized medicine, Dr. Murphy belonged to the County and the State Societies throughout his professional life. He was a Fellow in the American Medical Association, a Fellow in the American College of Surgery, and a member of the American Academy of Ophthalmology and Oto-laryngology, American Board of Ophthalmic Examiners, and the American Bronchoscopic Society. Genuine service to the profession brought honor and added responsibility to Dr. Murphy. He served as President of the New Hanover County Medical Society; then as Vice-President of the Medical Society of North Carolina 1912-13. In 1920 he was elected a member of the State Board of Medical Examiners, being President of the Board 1921-22. He was elected President of the Medical Society of the State of North Carolina and served with distinction until the end of his term in April 1931.

To the University of North Carolina, Dr. Murphy rendered a loyal service. He served as secretary of his class. For many years he was a member of the Board of Trustees of the University. He was the only physician to be a member of the Board of Trustees of the Greater University. He was a member of the Loyalty Fund Council and a member of the Board of Directors of the General Alumni Association.

Dr. Murphy took an active interest in all constructive civic affairs. He served many organizations in his adopted city. He was a member of the staff of the James Walker Memorial Hospital in Wilmington. He was active in promoting boys' work. He was the Past President of the Wilmington Kiwanis Club.

Always a devoted Churchman, Dr. Murphy was a member of the First Presbyterian Church of Wilmington, and for years had been an elder in that church. He was a genuine Christian gentleman.

At the outbreak of the World War, Dr. Murphy volunteered for service, but was not accepted by reason of physical disability. However, he did much work as eye, ear, nose and throat specialist for the Draft Appeal Board for the Wilmington district during the period of the war.

On November 1, 1922, Dr. Murphy was married to Miss Mattie Burwell in the historic Hopewell Presbyterian Church near Charlotte. His home life was happy. His devotion to his family was noteworthy.

The opening paragraph of Dr. Murphy's address as President of the Medical Society of the State of North Carolina, to my mind, typifies, in brief form, the spirit of the man. He said, "In loyalty to my best impulses, I desire first of all to express to this organization my fervent gratitude for its generosity in selecting me to stand on the bridge and pilot the medical ship through the uncertain waters of the past year. We have had many squalls, some gales, some threatening storms, and withal, some smooth and easy sailing. Many have stood by, when the clouds were seen gathering in the distance. They counseled to sail straight ahead, that our ship had strength for storms. To those who have stood by and helped and encouraged, I wish to express my appreciation. To an inexperienced mariner they gave assurance and confidence which has meant everything. Cheered on by the loyalty of these, the business trip was transformed into a pleasure cruise." Dr. Murphy had gratitude for every kindness and courtesy shown him. He had modesty. Otherwise, he would not have called himself an inexperienced mariner when for years he had been close to the pilot's bridge. Dr. Murphy had courage. A threatening storm did not divert him from his true course. He appreciated counsel. He would accept advice when evaluation showed it to be worthy. Dr. Murphy enjoyed service. He loved life.

Although he suffered intensely for many years from one of the most painful of all diseases—arthritis, Dr. Murphy's quiet courage and his indomitable perseverance enabled him to bear his sufferings with rare fortitude. He carried on faithfully almost to the very end of his useful and well-spent life.

The competent lay appraisal of the editorial writer of the *Wilmington Morning Star* was, on December 20, 1932, "Dr. John Gerald Murphy, whose demise occurred Sunday night, was one of those practitioners of medicine modern enough to keep abreast of the latest scientific discoveries, but old-fashioned enough to understand that his profession entailed certain responsibilities not required of the average individual. Thus, as he went down the changing course of time, he came to be a dignified, influential and widely respected gentleman whose field of service was not confined either to his own practice or to his own section.

"Personally, he was a genial gentleman with a high sense of the proprieties; a fine regard for human values; and a kind disposition. Professionally, he was often honored by his fellows, and in public spirit, he was identified with many of the leading institutions and agencies of North Carolina. His death is a loss to his profession and to his State."

To fill Dr. Murphy's place in the profession will be difficult. To fill his place in the hearts of his friends will be impossible.

DR. JOHN GERALD MURPHY—MY FRIEND

By Leslie Ballard Evans

For nearly two score years I knew John Gerald Murphy. He was my college mate, kinsman and friend. I have known few men better and loved none more.

In spite of a physical handicap he was a man of wonderful energy and touched life in many ways. His character and life were irreproachable. His ideals were high and his life inspiring. Merely to know him would make one a better man. He willed to do right and I never knew greater will power in any man. He lived above the fog and spoke and acted with boldness and candor, but never a sting.

These were the qualities that caused him to rise from a crippled orphan boy to the highest rung in a noble profession.

If wealth consists in the number and character of one's friends, then Gerald Murphy died a very rich man. His life taught us that:

"If your heart is brave and strong and true,
Then the world will bend or break for you."

Dr. John B. Wright (Raleigh): Mr. Chairman, I knew Dr. Murphy all my life. I grew up with him as a boy. He was never a strong man physically but always strong in character, and steadfast in purpose. He knew no obstacles when he had his mind set on a duty. Born as a poor country boy and then afflicted with a weak body, he had terrific obstacles to overcome to attain his education; but, with a steadfast purpose and indomitable will, he never let up until finally he obtained his literary degree from the University of North Carolina, his medical degree from Louisville.

With this weak and handicapped body that he had, it was at times impossible to do general practice in a successful way. He realized this and for years worked in preparing himself as a specialist. I think that the outstanding characteristic of Dr. Murphy was his strong will and determination to carry forth his purposes in life. I have seen him at the University when I don't believe there was another mortal in the State would have been out of bed, because of his loyalty to his Alma Mater. I have seen him at the medical meetings when of his own strength it would have been impossible for him to dress himself. But he was there in loyalty to his profession.

I think that the life he lived, clean and pure, with the determination and steadfast purpose would put him down as one of the characters in medicine in North Carolina who can well be emulated.

DR. R. W. MYERS

Dr. R. W. Myers, 69 years of age, died at his home at Fullers, North Carolina, August 8, 1932.

Dr. Myers had been in ill health for the last three years.

He was a popular physician of his community and a member of the Junior Order, also a Mason.

He is survived by his widow, one sister and several brothers.

He graduated in medicine from the Grant Medical College, Chattanooga, Tenn, 1897.

DR. GEORGE W. NORMAN

Dr. George W. Norman, aged 60, of Jamestown, North Carolina, died in a High Point hospital of pneumonia which developed after having been sick some days with an attack of influenza.

Dr. Norman was an honor graduate from the Medical College of Baltimore, Maryland.

He practiced his profession at Reidsville for fifteen years and then removed to Greensboro where he was associated with the late Dr. John A. Williams for about the same length of time.

During his medical career he built up a substantial practice, and his opinion on medical subjects was greatly respected.

He lived at Jamestown for about twelve months prior to his death.

Dr. Norman was a member of the First Avenue Baptist Church, and of the Maccabees.

He is survived by his wife, five sons and three daughters.

DR. A. L. PETREE

Dr. A. L. Petree, aged 74 years, for almost a half century an honored member of the medical profession, a prominent resident of Greensboro and a leader in church activities, died at his home in Greensboro, N. C., Sunday, April 16, 1933. Death resulted from an abrupt attack of angina pectoris.

Dr. Petree was educated at Dalton Academy and received his medical degree from the College of Physicians and Surgeons of Baltimore, and received several postgraduate degrees from other medical institutions. Dr. Petree had been regularly engaged in the practice of his profession since 1886.

Dr. Petree was a great church worker, was a steward in the West Market Street Methodist Church of Greensboro, having joined the church at an early age.

He is survived by his wife and two daughters.

DR. A. L. PLUMMER

Dr. A. L. Plummer, aged 50 years, of Denton, North Carolina, died in a hospital at Lexington, N. C., January 29, 1933, where he had been for several weeks taking treatment for an injury to his knee which was caused by a fall.

Dr. Plummer was educated at the University of North Carolina and received his medical training at the University of Maryland Medical School. He had lived and practiced at Denton for twenty-six years, being associated with the late Dr. A. Anderson, his father-in-law.

He is survived by his wife, two sons and two daughters.

DR. JOHN A. POLLOCK

Dr. John A. Pollock, 88 years of age, dean of the Kinston physicians, died at his home in Kinston, N. C., November 11, 1932, following an illness of several weeks.

Dr. Pollock served through the War Between the States as a private and was company clerk for his outfit. During his latter years he seemed to take great pleasure in discussing this fact.

After the war ended Dr. Pollock finished his medical education and established a large and lucrative practice in Kinston. He was State Senator from his district in 1902 and 1903. He was a consistent member of the Baptist Church.

Dr. Pollock is survived by his wife, one son and one daughter.

JOHN ALFRED POLLOCK

By Ira M. Hardy, M.D., Kinston

Born: Onslow County, Stones Bay, November 1, 1844. Son of Dr. W. A. J. Pollock.

Died: Kinston, November 11, 1932.

Married: Agnes Jones of Lenoir County, Kinston, January 8, 1867. Children: Mozelle, Raymond, Emily.

Wife died in 1914—December. Married in Washington, D. C., summer of 1917, Miss Lula Aldridge. His father, Dr. W. A. J. Pollock, moved to Kinston in 1851 and the family has lived in Kinston since.

John A. entered Lee's army near the close of 1861 and served throughout the war.

Came home to Kinston and went into the drug business on South Queen Street, east side near courthouse—south of the courthouse.

Decided to practice medicine and attended the New York University Medical School and in 1875 became a physician and practiced in and around Kinston; in active practice for more than 50 years, retiring in 1925. He was an early advocate of preventive medicine, and wrote many papers on hygiene.

Always public spirited and helped in all civic movements. Called the meeting and presided over it and took several trips to Raleigh to go before the General Assembly to help get through a school bill which brought to Kinston its first graded school, and was a school trustee.

Called the meeting which resulted in the organization of the first fire company and was a member of it, using hand apparatus—this in the early '80's. He was also a member of the board of aldermen.

Became a State Senator and served in the Senate of 1903. Was an active participant in the nominating convention in Charlotte when Kitchin was nominated for governor. In January 1909 was made a member of Governor Kitchin's staff and became Surgeon General of the North Carolina National Guard. In the fall of 1909, having reached the age of 65, was retired with the rank of Brigadier General under appointment of Governor Kitchin.

Soon after returning from the army became a Christian and joined the Baptist Church. Was active in church work, teaching a Sunday School class, and was treasurer of the church for a long time. A regular attendant until failing health made it necessary for him to discontinue regular church work.

Literary in his tastes—wrote "The Fair Lady of Halifax," a novel dealing with North Carolina in the early half of the 18th century. Fond of history and read many volumes.

A gentleman of the old school, courteous and kindhearted, generous to a high degree.

Of Scotch ancestry.

DR. JAMES LEWIS POSTON

Dr. J. L. Poston, aged 35 years, a member of the medical staff of Dr. Long's sanatorium of Statesville, N. C., died at his home in Statesville August 10, 1932, death resulting from heart trouble.

Dr. Poston was a graduate of the University of North Carolina and took his medical degree from Jefferson Medical College, Philadelphia, in 1922. Since 1923 he had been connected with Dr. Long's hospital at Statesville.

He is survived by his wife and one son.

JAMES LEWIS POSTON, COLLEAGUE AND FRIEND

By V. K. Hart, Charlotte

Very few of us indeed are actually self made. We attain our objectives through friends. Our conduct often reflects the subtle influence of friendship.

Only too often, however, this word friendship is made synonymous with material gain. This certainly was not so with our erstwhile colleague, Dr. James Lewis Poston, who died at his home in Statesville on August 10th.

His claim to a host of friends over the State, inside and outside the profession, was based largely on those values often called spiritual: loyalty; honesty; kindliness; breadth of vision; buoyant, clean good-fellowship; and endless thought of others. Consummately they bespeak character which expresses that thing called self in no ephemeral way, but in our daily tasks and contacts.

His daily life, rather than isolated events, best exemplified Dr. Poston. He gave of himself without stint to any patient, without regard to station. Though an only child, there was in him no taint of petulant selfishness. He was devoted to his parents who sacrified so much to give him high-class training. His splendid wife and small son were always uppermost in his mind. He was self-effacing almost to a fault. One of his greatest pleasures was the companionship of his friends. His cup was full when serving them.

His professional career was begun at the University of North Carolina. He received his degree in medicine from Jefferson, and took his general interneship at the Episcopal Hospital, Philadelphia. Since coming back to North Carolina, he had been a member of the staff of Long's Sanatorium, Statesville, where he was highly esteemed. Nevertheless, eager to improve himself, he found some time for postgraduate study in the medical centers.

Stricken with an incurable cardiac ailment, at thirty-five, in the very prime of life, he fought courageously and uncomplainingly for the life he loved so well and lived so completely. Our deepest sympathy goes to his distraught wife and family. Their loss is also ours. We shall keenly miss him. It may be truly said that he lived "by the side of the road, where the race of men goes by." Moreover, he died as he lived, bravely and unselfishly.

We wish that coming years may give fruition in his son to a life as useful and conducive to the happiness of others. We hope that he may live to appreciate and cherish this sincere tribute to the memory of his father: a physician, a gentleman, a friend.

Weary with suffering he left us to complete the journey without him. We shall carry on in a finer, more altruistic way for having had him as a fellow traveler.

DR. W. B. PRITCHARD

Dr. W. B. Pritchard of Faison, North Carolina, died since the last meeting of the State Medical Society.

No data.

DR. ARTHUR F. REEVES

Arthur F. Reeves, M.D., 51 years of age, a prominent physician and surgeon of Asheville, North Carolina, died suddenly at his home at that place March 7, 1933. He was seemingly in good health but was seized with a heart attack and only lived a short while thereafter.

Dr. Reeves was educated at Grant University, Chattanooga, Tennessee, and at George Washington University, Washington, D. C. Following his graduation he served three years in the Medical Corps of the United States army in Panama. During the World War he was stationed at Camp Greenleaf, Georgia, and at Allentown, Pennsylvania.

Dr. Reeves was a born leader; he was one of the founders of Aston Park Hospital, a member of the staff of the Old Merriwether Hospital and Mission Hospital.

He was a member of the Methodist Episcopal Church, a 32nd degree Mason and a Shriner and a member of the Keffeir Rockwell Post No. 2 American Legion.

He is survived by his widow.

DR. L. L. SAPP

Dr. L. L. Sapp, 65 years of age, of Badin, North Carolina, died April 5, 1933, at the home of his daughter in Portsmouth, Va., where he had been undergoing treatment for several weeks.

Dr. Sapp previously lived and practiced medicine in Reidsville, North Carolina. He later removed to Badin, N. C., and devoted most of his time to the drug business.

He is survived by his widow, three sons and one daughter.

DR. CHARLES L. SCOTT

Dr. Charles L. Scott, aged 56 years, died at his home in Sanford, North Carolina, July 26, 1932, of sarcoma of the spine.

Dr. Scott was educated at Thompson Military School, Siler City, N. C., and received his medical degree from the University of Maryland School of Medicine. He practiced his profession at Asheville and Greensboro, N. C., before locating at Sanford, where he was practicing at the time of the outbreak of the World War. He promptly volunteered his services and organized a hospital unit, of which he was Captain. Later he was transferred to the medical corps and was in active service over-seas, where he was promoted to the rank of Major.

After the war Dr. Scott returned to Sanford and built up a large practice. He also established and conducted Scott's Hospital until the opening of Lee County Hospital.

He was a member of the Presbyterian Church, a Mason, a Knights Templar, a Shriner and a Moose. He also belonged to the American Legion.

He is survived by his second wife and one daughter.

DR. CHAS. L. SCOTT

The following resolutions were passed by the Lee County Medical Society at the August meeting:

Destiny has removed from our midst, our colleague and our friend, Dr. Charles L. Scott.

Not one of us can grasp the reason of his going, nor can we appreciate its justice. We can only acquiesce in the workings of Nature.

We deplore the loss of a man of proven worth and ability; but more than this, we grieve individually and collectively at the loss of a friend possessing such gentleness and kindness so well known to the many he has cared for during sickness.

The sick will miss him; the poor and needy will miss him; his help was theirs for the asking. The members of this Society will miss him sorely, and are deeply sensible of the fact that his family will feel his absence even more keenly.

As a token of our esteem we wish therefore to devote a page in our minutes sacred to the memory of Dr. Chas. L. Scott. We wish further to extend to his family our deep sympathy in their loss.

August 24, 1932.

Geo. G. Chiles, *Chairman*
F. L. Knight
M. L. Matthews

IN MEMORIAM—DR. CHARLES L. SCOTT

By Dr. J. F. Foster

In the passing of Doctor Charles L. Scott from this life the state at large lost one of its best citizens; the community in which he lived one of its greatest characters for service, and the medical fraternity one of its most valuable members and strongest men.

Doctor Charles L. Scott was born at Haywood, Chatham County, N. C., on August 10, 1873, and died at his home in Sanford, N. C., on the morning of July 26, 1932, after a serious illness of four months duration.

The shock of Doctor Scott's death was general because he was much beloved by all who knew him, and as one of his close friends, who knew him well, stated, "You cannot bury a man like that; his spirit and memory will live on; his love, his cheerfulness and his character remain in all who knew him; you cannot take him away. He left us a legacy of love that will live on and on."

Doctor Scott received his earliest medical education and his degree of Doctor of Medicine from the University of Maryland in 1896.

Doctor Scott served a year as interne in a Baltimore Hospital. He then located in Mebane, N. C., where he engaged in general practice for a short time. Going from there to Greensboro where he was instrumental in organizing Saint Leo's Hospital. Later he located in Asheville, N. C.,

and was connected with a hospital for a while. From there he spent a short time in Clio, S. C., coming then to Sanford where he continued to practice medicine and surgery up to the time of his death.

When the United States entered the World War, Doctor Scott offered his services, organized a hospital unit and became its captain, later being promoted to the rank of major. When the war was over he was returned to Fort Bragg to be honorably discharged as Lieutenant-Colonel.

Doctor Scott was a public spirited man and was always found ready to do his part to advance the best interest of the town and community. He was also interested in fraternal affairs. He was a member of the Masonic Order, a Shriner, a Knight Templar, Loyal Order of Moose, American Legion, the Sanford Kiwanis Club, and Sanford Presbyterian Church.

Doctor Scott was a fellow in the American Medical Association, an active member of his County Society, his district Medical Society, and a member of the State Medical Society.

Doctor Scott was buried with military honors. The funeral services were held at the home by Rev. M. D. McNeill of Cameron, a former pastor of the Sanford Presbyterian Church, assisted by Rev. G. T. Adams, Pastor of the Steel Street Methodist Church, and Major Howarth, Chaplin from Fort Bragg. It was a great outpouring of people from all walks of life, many of whom had traveled long distances to pay tribute to the man whom they loved and honored during his life.

The last rites at the cemetery were in charge of a military unit from Fort Bragg and were most impressive, the work of putting away all that was mortal being done by the hands of men who had known him and loved him.

At the regular meeting of the Lee County Medical Society held in Sanford, N. C., your committee was instructed to draft suitable resolutions expressing the Society's sense of loss of one of its most active and loyal members and that copies of these resolutions be spread upon the minutes of the Society and also sent to the Chairman of the Obituary Committee of the State Medical Society and to the bereaved family.

Therefore, be it resolved that we, the members of the Lee Medical Society, do deeply deplore the death of our esteemed friend and co-worker, Doctor Charles L. Scott.

That in the death of this great and good man we have sustained the loss of a steadfast and loyal friend. That his departure has filled us with a deep sense of personal sorrow.

That to his sorrowing family we extend our sincere sympathy.

JOHN F. FOSTER, *Chairman.*

DR. JOHN BURNEY SHAMBURGER

Dr. J. B. Shamburger, aged 75 years, a prominent physician of Star, North Carolina, died suddenly at Wesley Long's hospital in Greensboro,

October 11, 1932. He was not thought to be seriously ill, but a sudden heart attack caused a collapse from which he never rallied.

Dr. Shamburger was educated at Trinity College, now Duke University, and received his medical training at the University of Maryland.

After receiving his medical degree he returned to Montgomery County and entered upon the general practice of medicine. He achieved a wide reputation as an able physician and, with all, he was a popular citizen, being active in all civic operations.

Dr. Shamburger was a member of the Methodist Church and was active in the religious life of his community. He is survived by his wife and four daughters.

JOHN BURNEY SHAMBURGER, M.D.

By Chas. Daligny, M.D.

Born near Dover, in Moore County, North Carolina, in 1857, son of the late Peter and Londa Burney Shamburger, of Moore County, died on October 11, 1932, at the age of 75 years.

Dr. Shamburger attended Trinity College, now Duke University, and under the tutelage of Dr. G. E. Asbury, of Southern Randolph County, first studied medicine. He entered the University of Maryland, Baltimore, and in the year 1890 was graduated in medicine.

Shortly after graduating, he moved to Star, North Carolina, and in 1894 was married to Miss Christian Leach.

There is no way of estimating the lives he touched during his career in his unselfish service. He glorified in the practice rendering help to those in need.

And thus has passed one of the few remaining doctors of the old school. A life-long general practitioner, devoted to truth, and science, a country doctor, the friend of the poor, the counsellor and confidant of all his clientele, courteous and cordial. He could take reverse without murmur, but was always willing and anxious to help anyone in distress. A prince in hospitality, a Christian gentleman. His community, his county, and the State is better because J. B. Shamburger has lived and moved and had his being.

Besides his wife, Dr. Shamburger is survived by four daughters, Miss Mary Ina, Professor of English, Pennsylvania College, Pittsburgh, Pa., Miss Anne Shamburger, teacher at N. C. C. W., Greensboro, North Carolina, Miss Frances, a teacher at Star High School, and Miss Elizabeth, student at N. C. C. W., Greensboro; also one brother, Rev. Frank Shamburger.

C. Daligny, M.D.,
Secretary Montgomery County Medical Society.

DR. CLARENCE A. SHORE

Dr. Clarence A. Shore, 59 years of age, for twenty-five years Director of the North Carolina Laboratory of Hygiene, and internationally known as an expert in the treatment of hydrophobia, died at a hospital in Raleigh, N. C., February 10, 1933. At the time of his death Dr. Shore was President of the Tri-State Medical Association of the Carolinas and Virginia.

Dr. Shore was a graduate of the University of North Carolina, taking his Master degree there also. He received his degree in medicine at Johns Hopkins University Medical School. He was a member of the following organizations: American Medical Association, American Public Health Association, Society of American Bacteriologists, North Carolina Academy of Science, Phi Beta Kappa, Sigma Xi, Sigma Alpha Epsilon, Nu Sigma Nu, the Tri-State Medical Association, of which latter he was President at the time of his passing, and the Medical Society of the State of North Carolina.

He is survived by his widow.

(See Second General Session, devoted to eulogies and unveiling of tablet at the Clarence A. Shore State Laboratory of Hygiene.)

Dr. A. McNeil Blair (Southern Pines): Mr. Chairman, I feel we can hardly pass over the name of Dr. Clarence A. Shore without noting the personal contact and assistance gotten from him. My first acquaintance with Dr. Shore was in 1904, and also in 1905, when we had need for his special services and those of his department, and he helped our immediate community very specifically and ably. Then later as we got to know Dr. Shore as a physician, as a personal friend, we have also a very personal knowledge of the assistance that he gave members of my family at the time of the great work in connection with rabies, and I feel that it is but right that one should voice some of the blessings that have come through Dr. Shore.

IN MEMORIAM

CLARENCE ALBERT SHORE, B.S., M.S., M.D.

By W. L. Grimes, M.D.

Clarence Albert Shore was born in Salem, N. C., on Nov. 26, 1873, and died in Raleigh on Feb. 10, 1933, following a short illness with mesenteric thrombosis and a ruptured mesenteric artery. His early education was in the Salem Boys' School after which he worked for a while as bookkeeper in the mills at Mayodan before entering the University of North Carolina where he made Phi Beta Kappa and received his Bachelor of Science degree in 1901. The following year he received his Master of Science degree and during this year and the following one was an instructor in biology. He then entered the Medical Department of Johns Hopkins University where he received his degree in 1907. On May 27, 1914, Dr.

Shore was married to Miss Ellen Dortch, of Raleigh, who survives him. In recognition of his outstanding work and ability the University of North Carolina conferred the honorary degree of Doctor of Laws upon him in 1929. In addition to his membership in the North Carolina Medical Society he held membership in the American Medical Association, American Public Health Association, Society of American Bacteriologists, Southern Medical Association, and the Tri-State Medical Association of which he was President at the time of his death.

In December 1907 Dr. Shore took charge of the Laboratory of Hygiene With the meagre equipment in two small rooms in the Agricultural Building, he began the work which increased so rapidly that in less than two years the Laboratory was moved to the Holleman Building. It remained at this location until January 1917 when it was moved to a building at its present location. Work increased and buildings and equipment were added so that now we have a Laboratory considered by experts to be one of the best in the United States.

The first work at the Laboratory was concerned chiefly with the examination of municipal water supplies which were a common source of typhoid fever in those days. Also early in the life of the Laboratory work was begun in the diagnosis and treatment of rabies upon which Dr. Shore was an authority. In 1928 he was invited to attend a meeting of the Rabies Section of the League of Nations at the Pasteur Institute in Paris. Three years later he went on a tour of inspection of the leading laboratories in this country and Canada. He was never slow in grasping new ideas and putting them to work after he was convinced that the health of the people of North Carolina would benefit. So diligent was he in his work that for some years now we have had at our command vaccines and sera for the prevention and treatment of disease as well as laboratory facilities as an aid in the diagnosis of a great many diseases. It would take too much of your time to enumerate the many developments that have taken place since Dr. Shore took charge of the Laboratory twenty-five years ago. Suffice it to say that no one in the State has done more than he to advance public health work, thereby saving many lives.

In this State of ours the fact that he held a public office for twenty-five years speaks eloquently for the ability of the man, phenomenal when we remember that his political faith was different from those in power. He has done a great work—a work that will live forever. It was a source of great happiness to him to know that his work was appreciated. This opportunity to commend the State Board of Health for publishing in its January 1933 issue of the Health Bulletin a tribute to Dr. Shore can not be allowed to pass as it told him before his death, in a public way, that his efforts were appreciated and it afforded him pleasure to know this. To express it in his own words in a letter to me just a few days before his last illness: "I know it is too flattering, but I am pleased nevertheless."

I can not refrain from including this tribute from the Health Bulletin so concisely and ably expressed by Dr. G. M. Cooper.

"Just twenty-five years ago Dr. Clarence A. Shore assumed his duties as Director of the State Laboratory of Hygiene at Raleigh. The Legislature of 1905 had made provision for the establishment of a laboratory, but the first appropriation for its maintenance was only six hundred dollars per year. In 1907, two years later, the annual appropriation was increased to two thousand dollars. A tax was levied on a few water systems then in operation to aid in the work of the Laboratory.

"Dr. Shore had already established a reputation as an instructor at the University of North Carolina, after his graduation there and at Johns Hopkins. At that time the equipment of the Laboratory was meagre and the work was unorganized. Typhoid fever from municipal waterborne infection was common. Few members of the medical profession were able to procure laboratory aid in their work, now considered so essential everywhere.

"Dr. Shore immediately organized the small facilities at hand and set to work to build a modern laboratory. He did his work so well that today the State Laboratory of Hygiene at Raleigh is regarded by competent authorities to be one of the best in the United States.

"Dr. Richard H. Lewis, who was Secretary of the State Board of Health at the time, had been busy for several years building on the foundation laid by Dr. Thomas Wood for an efficient health department. Dr. Lewis repeatedly urged Dr. Shore to undertake the work as Director of the Laboratory and the latter finally accepted and came to Raleigh in December, 1907.

"It is the purpose of this sketch to pay tribute to Dr. Shore while he is yet living and in the midst of his life's work. He has unquestionably contributed as much to the welfare of the public and the medical profestion in his advancement of the public health work as any other man who has lived in this State. Twenty-five years is a long time to stick to a public job through all the vicissitudes of conflicting political, professional, and commercial interests. But Dr. Shore has never been too weary to patiently assist any physician, health officer, or individual who has appealed to him in any problem affecting the public health. His continuous official service has already been longer than that of any other staff official ever connected with the North Carolina State Board of Health. His work in production and distribution of biologicals has saved many lives. In establishing competent diagnostic facilities through the laboratory he has not only saved many lives but prevented much human suffering."

DR. ROGER A. SMITH

Dr. Roger A. Smith, 73 years of age, a prominent and much beloved physician of Goldsboro, N. C., died at his home May 23, 1932, death being caused by acute nephritis.

Dr. Smith was educated at Pennsylvania Military College and Vanderbilt University. He practiced medicine at Goldsboro for fifty years, and for the last forty years was surgeon for the Southern Railroad.

He was a member of the Methodist Church and a Mason. He is survived by his wife, two sons and two daughters.

Dr. Wm. H. Smith (Goldsboro): Mr. Chairman, I would like to say something regarding Dr. Rogers A. Smith, of Goldsboro.

Dr. R. A. Smith, whose death occurred on May 23, 1932, at his home in Goldsboro, was born on his father's plantation in Johnston County, North Carolina, in the year 1859. His father, Major William A. Smith, was a man of means and at one time was the President of the North Carolina Railroad, and a member of Congress.

Dr. Smith was educated by private tutors until about the age of ten years, when he was sent to Horner's School at Oxford. On his graduation there, he entered the Pennsylvania Military School where he finished his preliminary education. Then he pursued an academic course for one year at the University of Virginia. Being of an energetic disposition, he was anxious to begin the study of medicine and he chose Vanderbilt University, where he graduated in medicine in 1881.

After passing the State Board, he resumed his education by becoming an interne at Bellevue Hospital in New York. During his two years' service as an interne, he took additional courses of instruction under such men as the elder Janeway and Gilwylie.

On the completion of his work in New York, he decided on Goldsboro as a place to live and built his home on the corner of Chestnut and George Streets where he lived all of his life and where he died. He joined the State Society in 1887 and for the last few years was an honorary fellow.

Dr. Smith married, in 1881, Miss Elizabeth Woodard, the daughter of Dr. Stephen Woodard of Wilson. This union was terminated last year by the death of Dr. Smith and it left as reminders, two sons and two daughters. And to Mrs. Smith and these children, every day brings reminders of Dr. Smith's work in the kind and grateful words that are said by his former patients and friends.

For over forty years, Dr. Smith was the surgeon for the Southern Railway at Goldsboro, and in this work went his whole heart, which was characteristic of all of his work. Materia Medica and Therapeutics interested Dr. Smith a great deal and his knowledge of these subjects, even in his last days, would have put to shame most of the younger men in the profession. All of his life he was interested in military affairs and for a number of years was the ranking surgeon of the Second North Carolina Regiment.

DR. JACOB L. SOWERS

Dr. J. L. Sowers, aged 38, of Lexington, N. C., and one of Davidson County's most beloved and prominent physicians, was instantly killed

May 1, 1932, when his automobile was knocked off highway No. 10 when struck by another car.

Dr. Sowers was educated at Wake Forest College and the University of Maryland. After receiving his medical degree he returned to his native county and ministered to those with whom he has associated all his life. He was beloved by all classes of citizens, and particularly, did he have the love of the poorer classes to which he administered freely his medical skill, regardless of pecuniary circumstances.

Dr. Sowers was President of the Ninth District Medical Society at the time of his death, Past President of Davidson County Medical Society, and coroner for two years.

He was a member of the Lutheran Church and a Mason. He is survived by his wife and one son.

DR. JACOB L. SOWERS

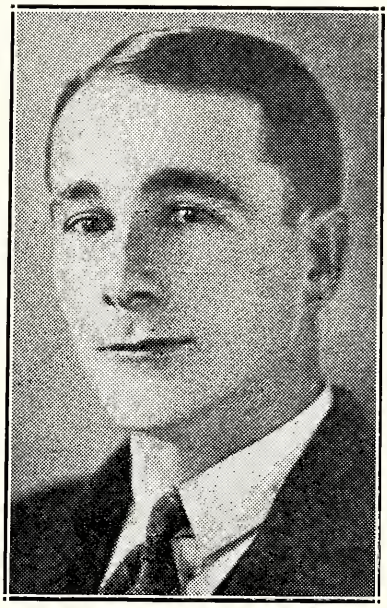
By J. R. Terry

At the suggestion of Dr. McBrayer and through the courtesy of the Committee on Program, it is my pleasure and privilege to pay humble tribute to our beloved President, that noble character, the late Dr. Jacob Long Sowers.

Dr. Sowers was born January 26, 1894, son of Luther C. Sowers and Fannie Florence Long. His early childhood was spent on a farm near Boone's Cave on the Yadkin River, in a section of the county known as Horse Shoe Neck. Dr. Sowers was a true son of Davidson County, with an abiding faith in and an inherited love for her people. He grew to manhood and graduated from Churchland High School in May, 1915.

After graduating from high school he entered Wake Forest College, where he graduated with B.S. degree in 1919, including first two years in medicine. While at Wake Forest College he was a diligent student and deservedly popular with both faculty and student body, which was attested to by the fact that he was President of the medical class of his senior college year. After completing the two-year course in medicine at Wake Forest he entered the University of Maryland, Baltimore, where he completed his medical course in 1921. He served as an interne at University Hospital, Baltimore, for one year after his graduation. After completing his interneship he returned to his native home, the red hills of Boone township, and located among the people who knew him best and loved him most. He later moved to Lexington where he practiced until his untimely death of May 1, 1932.

Positions of honor and trust filled by Dr. Sowers include: Local surgeon for the Southern Railway Co.; President of the Davidson County Medical Society; coroner of Davidson County for several years; sheriff of Davidson County for a few days, and President of the Ninth District Medical Society. He was a member of his county medical society, the



DR. J. L. SOWERS

North Carolina State Medical Society, the American Medical Association, the Masonic Lodge, the Red Men, Jr. O. U. A. M., and the Kiwanis Club.

Dr. Sowers comes of a family of doctors. He has a brother practicing medicine, a brother practicing dentistry; a nephew, Dr. E. J. Cathell, was his associate, and the latter's father, Dr. J. E. Cathell, brother-in-law of the deceased, practiced medicine for many years.

In 1922 he was married to Miss Elizabeth Travis, a registered nurse of Baltimore, Md., whose home was in Montana. To this union one son was born, Thomas Philip Sowers, who with his mother still survive.

The untimely death of Dr. Sowers was peculiarly sad. On Sunday morning, May 1, just as I arrived at the Woman's College, Duke University, I received a phone message from my little daughter. "Daddy, something awful has happened. There has been a wreck and Dr. Sowers is dead." A hurried trip home to find the whole town saddened and in mourning, for one of its best citizens, one of its most beloved physicians had died. Groups of his friends from all parts of the county were gathered on the streets, not to talk or discuss the tragedy, but they were saddened beyond words of expression.

On Monday his body lay in state from 11:00 to 2:00 o'clock at the First Lutheran Church, of which he was a member. Hundreds of friends and patients both white and colored filed by to pay their last respects. Borne by six of his closest doctor friends, as pall-bearers, he was laid to rest at St. Luke's Church near his old home. Thousands attended the burial, and his popularity was attested to by the fact of hundreds of floral offerings.

The words of Van Dyke so aptly describes the character of Dr. Sowers, they are here quoted.

"He has achieved success who has lived well; laughed often and loved much; who has gained the respect of intelligent men and the love of little children; who has filled his niche and accomplished his task; who has left the world better than he found it, whether by an improved poppy, a perfect poem or a rescued soul; who has never lacked appreciation of earth's beauty, or failed to express it; who has always looked for the best in others and given the best he had; whose life was an inspiration; whose memory a benediction."

"He never darkened a brow
Nor caused a tear but when he died."

DR. JOSEPH POWELL SPEIGHT

Dr. J. P. Speight, 49 years of age, of Rocky Mount, North Carolina, died suddenly July 29, 1932, of a heart attack while en route to his home from Wilson, N. C.

For a number of years Dr. Speight had not been in active practice because of ill health. He received his medical degree at the University

of Louisiana, and was one of a family of physicians, his father, the late Dr. R. H. Speight of near Rocky Mount was one of the old school of country doctors. He also has two brothers who are at present practicing in Rocky Mount.

He is survived by his wife, two daughters and one son.

Dr. W. H. Smith: Dr. Speight, I have been informed, at one time, had the largest practice in Rocky Mount. I know that Dr. Speight was one of the people who were the cause of that Parkview Hospital being in Rocky Mount. It is one of the best institutions in North Carolina.

Dr. Speight and I were together in the University of North Carolina and then we went to Philadelphia at the same time. He went to Jefferson and I went to the University of Pennsylvania. Then we served together in the Polyclinic Hospital in Philadelphia.

I have been sitting here wondering why some of the men in Rocky Mount have not prepared a statement on Dr. Speight. I felt like, on account of my former friendship—and I did have a very kindly feeling for Dr. Speight—that I couldn't let his death pass unnoticed by this Society.

DR. J. C. STALEY

Dr. J. C. Staley died at his home in Burlington, North Carolina, December 6, 1932.

Dr. Staley was educated at Wake Forest College, and received his medical degree from the Louisville Medical College, Louisville, Ky.

Dr. Staley located and practiced for nine years in Randolph County. He then taught school for a number of years, moving to Burlington where he became a prominent churchman and civic leader. He was a member of the Baptist Church.

He is survived by his widow.

DR. T. J. STEPHENSON

Dr. T. J. Stephenson of Seaboard, North Carolina, died during the past year.

No data.

DR. RALPH S. STEVENS

Dr. Ralph S. Stevens, 47 years of age, died suddenly at his home in Princeton, N. C., May 20, 1932. He died of a heart attack.

Dr. Stevens received his medical degree from the University of North Carolina and was assistant in the medical department in Raleigh for some years, later taking up private practice.

In 1917 he entered the United States army and went overseas, serving as captain in the medical corps. He was discharged from the army in 1919 and since that time he has been engaged in general practice at Princeton.

He was highly esteemed and his death caused a great shock to the people of the community.

He is survived by his wife, three sons and three daughters.

DR. DAVID T. TAYLOE

Dr. David T. Tayloe of Washington, North Carolina, died in a hospital at that place Tuesday, January 10, 1933.

Dr. Tayloe was easily one of the most accomplished surgeons in North Carolina. Twenty-eight years ago he founded the hospital in which he died, the reputation of which was widely known. He was a consistent member of the Episcopal Church. He was an Honorary Fellow and ex-President of the Medical Society of the State of North Carolina, a member of the Tri-State and the American Medical Association.

Dr. Tayloe was graduated in medicine from Bellevue Medical College of New York in the year 1885 and joined the State Society the same year.

TRIBUTE TO DOCTOR DAVID T. TAYLOE

By Dr. Thos. E. Anderson, Statesville, N. C.
(Read on request by Dr. J. M. Parrott)

Milton, assured by his genius, in the opening lines of his great epic, *Paradise Lost,* says confidently *"with no middle flight do I intend to soar."* I wish I could approach the theme I've assumed with the same confidence. I shall be content if I even attain a "middle flght" in paying the following tribute to my departed friend.

Dr. David T. Tayloe, the pride of his native town and all Eastern North Carolina, who laid down his scalpel through which he had brought relief to numberless sufferers and distinction to himself after days and months of bodily infirmities, Tuesday night, January 10, 1933. He was born near Oxford, N. C., February 22, 1864, his mother having gone there as the threatening clouds of war hung over their home in Washington. His father, Doctor D. T. Tayloe, was a surgeon in the Confederate Army and held in highest esteem as a physician of first order. Early in life he evinced a desire to follow in the footsteps of his father. Educated at the Washington Academy, he took his degree of M.D. from Bellevue Medical College of New York in 1885.

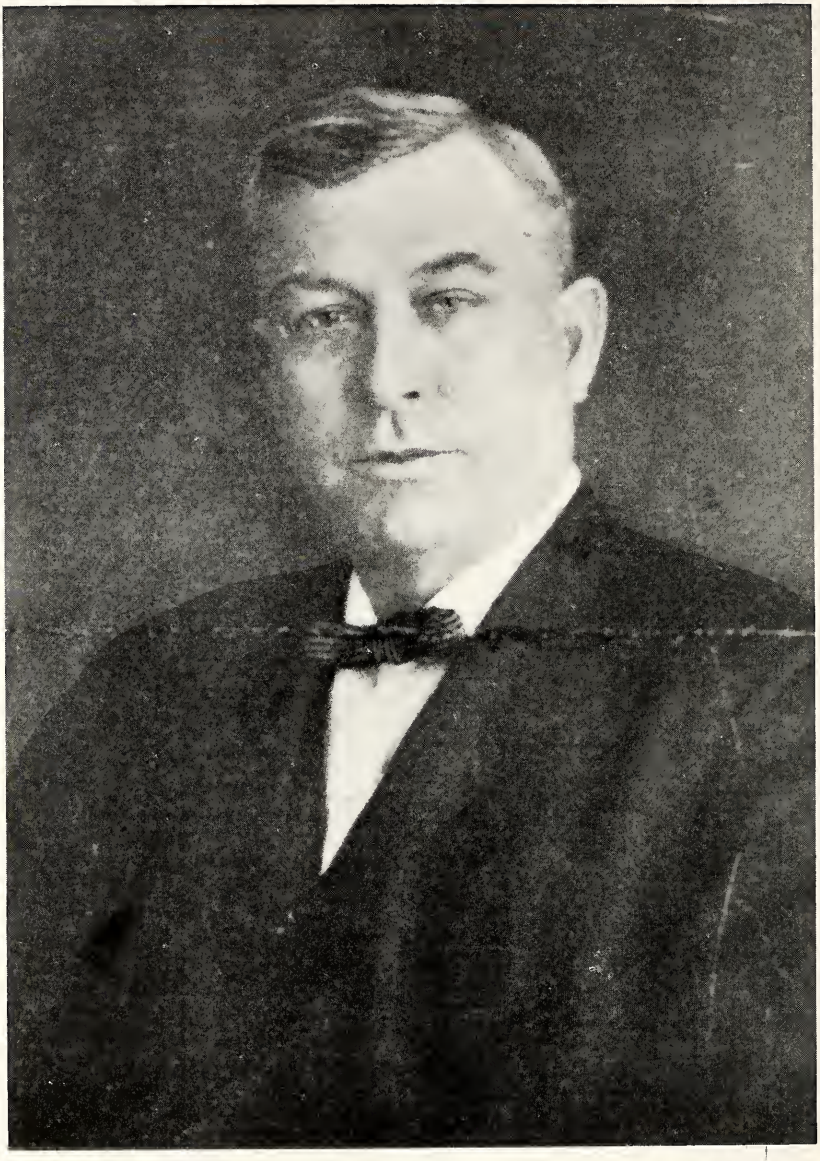
In 1895 Dr. Tayloe took postgraduate work in Boston and Philadelphia, locating in his native town, Washington, N. C. His rise was phenomenal. From his high endowments, by his skill and unusual charm of manner, he so ingratiated himself in the love of all that portion of the State to a degree almost amounting to idolatry.

In 1893 he married Athalia Cotten of Tarboro. Five children were born to them, three sons and two daughters. Lured by the charm given to medicine by their father, his three sons elected to follow in his footsteps, and have easily attained distinction in that field.

He lost his faithful wife three years ago and his tribute to her in a letter to me, which I carefully preserved, will ever stand with me as a model of beauty in attesting her worth. Next to his love to her and his children, stood the North Carolina Medical Society which promptly evaluating his worth bestowed on him all the honors at its disposal, his first major honor being election on the Board of Medical Examiners at the session of 1896 at Winston-Salem. This was my first real acquaintance with him, having received this honor myself at the same time and place. In putting him in nomination, well do I remember the felicitous words of our loved O'Hagan, who, after recounting his gifts, said possibly some may object to him on account of his youth (he was at this time nearing thirty years of age) but "happily time will remedy that," said this most versatile and gifted man. Then, with great unanimity, in 1904, at Raleigh, he was invested with the Presidency of the Society and presided with ease and dignity at our next meeting at Greensboro in 1905. Then in 1907 he was elected to the State Board of Health for the period to 1909.

His reputation for surgery drew a large class to him from the regions round about and he was often called on by the courts as an expert in many important cases. Mark Antony, in his oration at the bier of Caesar, after recounting his great service to Rome, said "and yet none so poor as to do him reverence." Not so with our loved friend. I would transpose that by saying, "that none so poor as to not do him reverence"; his friends were only limited by his acquaintances. The Jew of old, recovering from a malady, ere he could mingle with his kind, was required by the old Mosaic law to first show himself to the priest, so I, at our annual meetings made it my first duty to hunt him up and receive his greetings ere I entered into the serious business at hand. I did not feel organized for the occasion till I had felt the pressure of his cordial grasp. Of every group he was the center, the laughter, and the radiant faces attesting the pleasure with which they hung on the words of his ready tongue, for as a raconteur, he was a master. But after the serious business of the day was over, in his room always were to be found the choice spirits of the Society and the distinguished guests from other parts; it was then that he rose to the zenith of his entertaining power, and caused the cares of the day to fold their tents after the manner of the wily Arabs and silently steal away sleep yielding the palm to laughter as the great restorer of the soul.

Death has drawn heavily on our lives in the past months and written finis on the lives of several of our most cherished members, among them none more esteemed than the amiable, gifted, Albert Anderson, who brought his charge, the State Hospital at Raleigh, for the distraught minds of our citizens, to be recognized as the best in the country, and then followed quickly by the modest, highly efficient, scientist, scholar, and gentleman, Dr. Clarence A. Shore, our able Director of the State Laboratory of Hygiene. But no man among our numbers I feel I can safely say, conferred more honor on our noble profession than our friend whom we



D. J. Taylor

mourn today, Dr. David T. Tayloe. Nature was most kind to him, having endowed him with a strong, well-knit frame, surmounted by a face and brow of rare charm, with cheery manner, and deep, well-modulated voice, he could bring more cheer to and dispel more gloom from a sick chamber than all the drugs of the pharmacopœia.

It's a pity to lose such men from a world where so much gloom prevails, in spite of all God's open spaces where so much sunshine and flowers obtain. Well did his home town paper express a doubt that his place will ever be filled.

Constrained by the love I bore him, I make this offering obsessed with the feeling all the way through how far my poor words fall short of portraying him as he deserves.

By church relations, he was a communicant of the Episcopalian Church and I am sure his trust was stayed on his Saviour from whom he had imbibed the great commission to serve his suffering fellowmen.

I would here insert the climax of the tribute paid him by his home paper "there never has been another citizen in this section of the State held in as high regard as he and it is doubtful if the future will ever reveal one approaching him." How we will miss him from all our assemblies!

My noble friend, I bid you a brief adieu, the sands are low and few on the glass. Our warm friendship never broken here, will take up the thread over there, and in sweet communion we will walk those golden streets and with glad hearts, serve our King in any sphere assigned us.

Dr. Thos. E. Anderson,
Statesville, N. C.

DAVE TAYLOE—A TRIBUTE

By Hubert A. Royster, M.D.

If ever there was a man of his own peculiar kind, that man was Dave Tayloe. Morally, mentally and physically he was cast in a distinct and positive mold. Holding to the belief that Nature makes a specific contract with each individual born upon the earth, one can reasonably infer that Dave Tayloe drew decisive terms from his Creator and that he was set apart for his work in this world. His character was without a duplicate; he was a "character" in himself. With platitudinous satisfaction we are accustomed to say that no two human beings are exactly alike and we use the word "personality" so glibly that it has come to be meaningless. Well, there has been none like Dave and there never will be; in him personality had a habitation and a name.

In May, 1894, I had my first glimpse of this man in a Greensboro hotel as he was leaving for home following a session of the State Medical Society, and as I was returning to medical school after appearing before the examining board. I did not then actually form his acquaintance, but

he was pointed out to me as Dave Tayloe. Impressed by his appearance and his hearty manner, I carry with me to this day a mental picture of him. Youngish—he was then just over thirty and looked much younger—and brimming over with activity, with his fair skin and kindly blue eyes, stocky frame, topped off by his wide-brimmed white felt hat, talking to his companions in that resonant deep voice, he instantly attracted me and I realized that this was no ordinary person. He was in company with another striking character, whom I also was seeing for the first time, none other than the venerable Charles J. O'Hagan, to whose memory seven years later Dave paid a worthy eulogy. I wish I might do as full justice to the subject of this sketch as he did to his patron saint.

At Goldsboro in 1895 I sought for Dave (as I found many were wont to do), told him my name, expressed a desire to know him—and from that day to his final illness, we were firm friends. He was a kind of a friend, who, whether we met often or seldom, I could always feel would remain steadfast, never faltering in the pinch. I loved him and I am assured he loved me, for we found in each other a certain kinship of ideals and aspirations.

Adequately to portray a just impression of Dave Tayloe is not an easy undertaking. He was many-sided; a composite picture of strength with gentleness, of humor with emotion, of temper with forbearance, of a rough exterior with a tender heart. When we think of him as a living entity, certain words come to our consciousness, which describe him—kindness, generosity, hospitality, heartiness, genialty; and yet behind it all was a moving force, an independent spirit which exuded confidence, esteem and respect. With his abundant affection and even child-like trust, there was not a flicker of effeminacy in his make-up. His likes were no stronger than his dislikes and he abhorred all injustice, whether directed toward others or himself. He would fight for his rights and any reflection on his own or his friends' honor was like match to gun-powder. But withal he was a gentleman of the old-fashioned type, meaning that he never consciously gave offense. Born to be a patrician, he gave vent to the democratic urge because of love for his fellow-man and his joy in companionship. I knew an elderly lady from another State, of fine aristocratic lineage, who was fond of Dr. Tayloe, rejoiced in his company and revelled in his rugged conversation with its picturesque, always polished, profanity, because she recognized a kindred flavor in the background.

Dave's dominant note was an innate frankness, an intellectual honesty (the highest of all), an open-mindedness, which forged a bond of sympathy and understanding with those who came in touch with him. He had nothing to conceal and never tried to make out a better case for himself than the circumstances allowed. This very attribute formed the essence of the humorous stories, with which he regaled his hearers, high and low, far and wide; for in all his anecdotes he was bringing himself in as a part of the ridiculous drama. How he could tell these tales! And their

sources were all authentic, albeit his frequent embellishments enlivened each performance, so that they improved with age. Whether recited to his intimate friends, to a general company, or to a distinguished audience, lay or profession, at home or abroad, Tayloe stories never failed to receive a rousing reception. Not soon shall I forget an occasion at a fashionable club in one of our largest cities, when Dave, at his best, unleashed his repertoire of tales to an after-dinner party of eminent doctors and kept these grave and reverend seigneurs convulsed with laughter and screaming with glee far into the night. He was the same inimitable person there as on his native heath. At no time did he harbor a shadow of pretense or put on an artificial front. Nor was self-aggrandizement a part of his temperament. The only bragging he ever did was about the friends he had and what they had been to him. Unmistakably this was an honest-minded man.

Dave entered the medical profession in his early youth. His diploma was awarded him just as he came of age, but for some years, both before and during his student days, he had practiced with his father. From first to last he did all kinds of practice under all sorts of conditions. When he established his own hospital he began to devote greater attention to surgery, for which he had a natural instinct. Without early training, he acquired through the rough and tumble technique of his own experience, bolstered by postgraduate courses, an assured degree of skill which brought him success. He had many of the qualifications of a good surgeon—calm judgment, sound sense and unwavering confidence. He may not have attained to that perfect state of the ideal surgeon as expressed by an ancient author—"the eye of an eagle, the heart of a lion and the hand of a woman"—but he strove to approach it and labored in his day and time to that end.

We who are left behind to carry on where Dave laid down his burden may forever comprehend what manner of man he was by meditating on the final words of the last message he delivered:

"When I get down on my knees, I can thank God for many things; for the splendid family He has given me, for the blessings of a good constitution and good health during most of my life, for the material rewards that He has seen fit to turn my way, and for many other things. I cannot thank Him enough for all these. And when I begin to take stock of the persons whom I can number as my friends, who stand ready to be of help and service to me whenever I may need them, who always have a friendly word for me and who seem to appreciate seeing me; when I begin to think of these things, then I realize what a great debt I owe my Maker. A debt, which, of course, I can never repay."

Dr. Ira M. Hardy (Kinston): It was my great pleasure to live in the town with Dr. Tayloe eleven years. There was hardly a day I didn't see him. He was one of the jolliest souls that ever I had the pleasure of knowing. His friends, he loved; his patients, he loved better. The road

was never too long or too muddy, the night was never too dark but that Dave would go and call on a friend. I don't think I ever came in contact with a physician who impressed me more than Dr. Dave Tayloe. I numbered him as a very, very personal friend. He was always good to me. I remember when I went before the State Board. He was examining me on surgery. He'd come by every once in a while and say, "Hardy, how are you getting along?" "Doctor, I believe I'm up against it." "Oh," he said, "You're not up against it; go ahead and put down something—we boys are not going to let you fail." And he was just that manner of man. You couldn't help being drawn near to him. I just wish I could portray in words really what I thought of Dr. Dave Tayloe.

Dr. L. B. McBrayer (Southern Pines): Mr. Chairman, I note with a great deal of feeling the passing in the last year of three past presidents: Dr. Anderson, Dr. Murphy, Dr. Tayloe. Dr. Anderson and Dr. Tayloe had, in addition, been honorary Fellows of this Society for quite a good many years following continuous membership, a continuous service for thirty years. Dr. Murphy, the year of his death, became an honorary Fellow.

And that leads me to say—I see some past presidents sitting around me—it seems to be the policy, the unwritten policy, of the Medical Society of the State of North Carolina to confer this honor of President on men who have given proof over a period of years of their devotion and their loyalty and their service to the general good of the Society and to the medical profession of our state.

I knew each of them well but there was one thing in the life of Dave Tayloe that I see, that I have seen for many years, and that was the influence for good over and helpfulness to the younger men of the profession. The first three or four years that I entered the profession, there was some one who reasoned with me. He took notice of me and was kind to me. It was Dave Tayloe. It was Dave Tayloe who gave me the first preferment that came to me in the Medical Society of the State of North Carolina; when he presided over this Society as its President, it was he who invited me to respond to the address of welcome. To say I was surprised puts it mildly indeed, for I had no thought that he would be able to remember me, only having seen me a few times. Whatever preferment has come to me at the hands of this Society and surely I've had much more than I deserve, was due in large measure to Dr. Dave Tayloe bringing me before the Society in the manner above mentioned. And when he was presiding over the Tri-State Society as its President at Charleston, S. C., he again asked me to respond to the address of welcome. It seemed impossible for me to attend that meeting, but could I refuse to comply with a request of Dave Tayloe? I could not, and I went to Charleston and did my best because of his request to me. And thus, perhaps without knowing it, he grappled his friends young and old to him with "hooks of steel." And as I watched him through the years, I observed that his

encouragement of and helpfulness to the younger men of our profession, yea Doctors of all ages and his friends generally, of whom the number seemed to be "as the sands of the seashore," was an established habit of his life, or perhaps it were better to put it, a part and parcel of every fiber and cell of his being. He lived his life, he lived it abundantly, there could be no regrets of life ill spent, of work unfinished when he "put out to sea."

If I could emulate only one of the many splendid examples he bequeathed to us, his influence for good over the younger members of our profession, I would feel, when my worked is ended, that my life had been well lived. Dave Tayloe! We miss thee greatly! We loved thee much! We love and revere thy memory! We follow thee soon! Until then, good-night.

DR. H. A. TAYLOR

Dr. H. A. Taylor, 40 years of age, former acting head of the State Department of Health, died at his home in Stonewall, North Carolina, April 13, 1933.

Dr. Taylor served for some years with the Rockefeller Foundation in various parts of America and in foreign countries. He also assisted with flood relief work along the Mississippi river. He came to New Bern, N. C., as a representative of the Rockefeller Foundation for the extermination of mosquitoes in that region and served several years in that capacity before accepting work with the State Board of Health in Raleigh.

Since his retirement from state work he engaged in general practice in Stonewall. His body was taken to Birmingham, Ala., for burial. He is survived by four daughters.

DR. J. M. TEMPLETON

J. M. Templeton, M.D., aged 76 years, of Cary, North Carolina, died of a heart attack in a Raleigh Hospital May 1, 1932.

Dr. Templeton received his medical degree from Baltimore Medical College in 1882. As a doctor he was a keen diagnostician, a good therapeutist, and a good psychologist. He never lost his calm, even disposition.

In spite of his age, at the outbreak of the World War he volunteered his services and drilled with the best of them. He served as a first lieutenant in the medical corps in the 30th division.

In his death our state lost one of the real doctors of the old school. Of him it may well be said,

> "His life was gentle, and the elements
> So mix'd in him that Nature might stand up
> And say to all the world, 'This was a man.' "

DR. J. M. TEMPLETON

By John P. Hunter, M.D., Cary

James McPherson Templeton was born in Iredell County October 4, 1855. He was twice married—first to Miss Rachel Jones of Cary, who died in 1891. In 1894 he married Miss Edith Burns of Canada; she survives him. He was a graduate of the University of Maryland in 1882 and began his practice at Dallas, N. C., but came to Cary to practice September 20, 1885.

In addition to the discharge of the arduous duties of a large practice, Dr. Templeton was, from the time he entered the profession until his death, called into other service for his country and for many associations and organizations. He always took an interest in public matters and was especially interested in political movements which he considered for the good of his country. Because of this feeling, he was a candidate for the governorship on the Prohibition ticket in 1892; he was vice-president of the Farmers Union; president of the County Medical Society and at one time delivered the annual oration of the North Carolina Medical Society. When the Wake County Medical Society was formed, he was one of the charter members. He served in the Medical Corps of the World War at the age of sixty-one and always kept in active touch with the American Legion. He was very active in the advancement of good roads, schools and public health work. Ever since the public schools were started in his town under the management of Professors Middleton and Dry, he was chairman of the school board and performed his duties faithfully and well.

I want to state that Dr. Templeton was well known all over the State and in other places wherever he attended medical meetings, for he was always an attentive listener and was ready to give his opinion on any discussion of any subject in which he was interested. In these discussions he had the characteristics of a man who was fearless in advocating what he thought was best for the general practitioner and the relation of general practice to special branches of medicine. He had a passion for comprehending the whole medical problem. He was one of the few men who took great interest in mental hygiene and the new advances in mental sickness. On account of this attitude toward his own profession and every public question and movement that came up, he carried the spirit of youth up to the time of his death.

There is no man among us who enjoyed attending medical meetings of every sort as he did. Even in national meetings he was always present when he could go and never failed to discuss a subject in which he was interested. On account of his positive and aggressive spirit, there were many who antagonized him and at times did not understand him as is so often the case with courageous men; but he was always ready to adjust any difficulties that came from misunderstandings. Such a man gathers friends through a lifetime who are loyal and devoted; and, at his funeral the loyal

friendship of great numbers from all callings and professions, from his own community, and from a distance was conspicuously in evidence.

I want to say these things mainly to impress upon young men the importance of remaining young through interest and action and learning from the example of a great country doctor how to be like him in giving a large contribution to all community enterprises outside of his professional work. Organized medicine was to him an ideal which he served with every ounce of his strength—physical, mental and moral.

Dr. Templeton died May 1, 1932, at the age of 76, and in his death we lost an honored and beloved country doctor, a courageous citizen and a dear friend.

Dr. A. McNeil Blair (Southern Pines): Mr. Chairman, I would not be fair to myself and my fellows if I did not pay a tribute to my honored friend, Dr. Templeton; a man of unusual worth, of pronounced convictions, and yet, honest determination. A man, whom we all, perhaps, love because of our ability to disagree. It is with a great deal of feeling that I speak. I happened to be so fortunate as to serve on the Council for a decade, two periods of six years, with Dr. Templeton; and while we could not always agree, we could not but agree to one thing—he was honest in his beliefs and convictions and his determination to be just to his fellows as he saw his duty.

DR. FRED R. THOMAS

Dr. Fred R. Thomas, 63 years of age, died at his home in Winston-Salem, North Carolina, March 5, 1933.

Dr. Thomas had been in ill health for some time and had recently located in Winston-Salem in hope that the change in climate would help him regain his health.

He is survived by his wife and three sons.

DR. W. A. THOMPSON

Dr. W. A. Thompson, aged 70 years, died at his home in Rutherfordton, North Carolina, February 28, 1933.

Dr. Thompson was a prominent physician, mill-stock holder, farmer and livestock dealer. He was president of the State Jersey Cattle Club. He was a staunch Presbyterian. He is survived by his wife and one sister.

DR. OWEN B. VAN EPP

Dr. Owen B. Van Epp, Cashiers, died Oct. 6, 1932.

DR. JULIAN S. WOODRUFF

Dr. J. S. Woodruff, aged 38 years, died of cerebral hemorrhage at his home in Charlotte, North Carolina, September 26, 1932.

Dr. Woodruff was a graduate of the University of Maryland School of Medicine and had practiced his profession in Charlotte for the last nine years.

He was the third physician of the same name in a distinguished family. He was a member of the Presbyterian Church.

He is survived by his wife and two daughters.

DR. J. J. YOUNG

Dr. J. J. Young, 60 years of age, of Clayton, North Carolina, died suddenly November 6, 1932, while visiting his daughter at Rex Hospital, Raleigh, N. C.

Death resulted from acute dilitation of the heart and hypertension. He was a graduate of the University of Maryland Medical School, class of 1897.

He is survived by his widow and two daughters.

DR. J. H. YOUNT

Dr. J. H. Yount, aged 80 years, a prominent physician and business man, died at his home in Newton, North Carolina, April 1, 1933, following a brief illness.

Dr. Yount graduated in medicine at the Charleston College of Medicine and the University of Maryland, class of 1876. He began the practice of medicine in Iredell County but removed to Newton in the year 1897.

In addition to practicing his profession he was actively engaged in banking business, textile industry and farming.

He is survived by two sons.

THE BURIAL OF DR. GEORGE SAMUEL WATKINS

There stood about his grave a multitude
Of men and women; friends of him whose form
Must now return to dust. No sound was heard,
Save when the preacher spoke the solemn words,
"The Lord gave and the Lord hath tak'n away."
Yet every eye was moist, and silent grief
Drew hearts together in a common bond:
For in that throng of watchers there was none
Unmindful of some loving service done
By him whose presence, in the hour of pain,
Brought hope and ease. He was so full of life,
So strong, so certain that the worst had passed
And that a brighter day was just ahead,
That silent tongues now seemed with one accord
To say, "It cannot be that he is dead;

It cannot be that 'Doctor Sam,' is dead."
Amid the group were men of hoary heads,
And women bent by far advancing years,
The middle-aged, and youth, and, in their robes
Of white, those nurses who in him had found
A father, friend and teacher,—lovingly
Bore flowers, which had ever been his joy,
And placed them as he loved them when alive;
While many negro friends were there to add
Some tribute of respect or gratitude.
Physicians bore his casket. Unto them—
His fellow workers, yoked through years of toil,—
He was a man respected and beloved.
And all of those who stood there saw a light,
And heard a voice which echoed deep within,—
"The spirit of this man is still alive;
A man who fought his battles unafraid.
This was his goal,—to serve his fellow man,—
Sustained in all he did through faith in God."

—Benj. K. Hays.

FIFTH GENERAL SESSION

President Wright: The fifth and last General Session of the Medical Society of the State of North Carolina for 1933 will now be in order.

The first item here is the report of the Board of Medical Examiners—Dr. Lawrence.

Mr. President, and members of the North Carolina State Medical Society:

We, the members of the new Board of Medical Examiners wish to thank you for the honor which you conferred upon us at the Winston-Salem meeting. We realize that the previous Boards have set a high standard and it will be difficult for us to measure up to the heights and depths of the sterling qualifications as exemplified in our distinguished predecessors.

After our election at the Winston-Salem meeting Dr. MacConnell, Secretary of the retiring Board, called the new members together for an organization meeting on June 20th, 1932. An exact and correct copy of the minutes of that meeting are attached to this report and will appear in the transactions.

First Meeting

June 20, 1932—Sir Walter Hotel, Raleigh, N. C.

At the call of Dr. John W. MacConnell, retiring Secretary of the old Board, the members of our Board assembled at the Sir Walter Hotel in Raleigh about nine o'clock in the morning. The members of the new Board

present were: Doctors K. G. Averitt, Hamilton W. McKay, B. F. Royal, Wm. H. Smith, James W. Vernon and Benj. J. Lawrence. The first business of importance was to organize for work. It was suggested that the senior member of the Board usually became its first President and accordingly Dr. K. G. Averitt was unanimously elected first President of our Board. It was further suggested and agreed that the President be elected for one year, alternating between the other members, the Secretary-Treasurer be elected for six years.

Dr. Averitt then took the chair and asked for nomination for Secretary-Treasurer. Dr. Hamilton W. McKay nominated Dr. Benj. J. Lawrence and Dr. James W. Vernon seconded the nomination. There were no other nominations and Dr. Lawrence was unanimously elected.

After some discussion regarding subjects for examination it was decided that subjects be assigned as follows: Dr. Hamilton W. McKay, examiner in Anatomy and Embryology; Dr. Wm. H. Smith, examiner in Practice of Medicine and Pediatrics; Dr. K. G. Averitt, examiner in Pharmacology, Materia Medica and Therapeutics; Dr. F. Webb Griffith, examiner in Gynecology and Obstetrics; Dr. Benj. J. Lawrence, examiner in Pathology, Bacteriology and Histology first three years and Surgery last three years; Dr. B. F. Royal, examiner in Surgery first three years, examiner in Pathology, Bacteriology and Histology last three years; Dr. James W. Vernon, examiner in Chemistry, Physiology and Hygiene.

Dr. K. G. Averitt suggested that the Secretary write Dr. F. Webb Griffith setting forth the above facts and regretting his absence. Our Board then adjourned to meet conjointly with the old Board. Our Board to meet again on December 5th at the call of the President.

(Signed)
K. G. Everitt, *President,*
Benj. J. Lawrence, *Secretary-Treasurer.*

Our next and second meeting was held in Raleigh at the Sir Walter Hotel on the morning of December 5, 1932. At that meeting the full membership of the new Board composed of Doctors K. G. Averitt, President, F. Webb Griffith, Hamilton M. McKay, B. F. Royal, Wm. H. Smith, James W. Vernon and Benj. J. Lawrence, Secretary, were present together with Dr. MacConnell of the previous Board. At that meeting there were two applicants for duplicate license. Eight men were licensed by endorsement of their credentials. Our next meeting will be held in Raleigh at the Sir Walter Hotel on the morning of June 19, 1933, for endorsement of credentials and on the 20th, 21st, 22nd, 23rd, inclusive, the examinations will be given.

We have had a very harmonious year thus far. It has been a genuine pleasure to work with the members of this Board. We have had a few complaints of irregularities here and there. It is reported by the Narcotic Bureau that there are many men in this State who either are careless and abusing their narcotic license or they are openly violating the law. I take

this opportunity to officially warn these gentlemen that it will be a great kindness to the Board of Examiners and it will save them personal inconvenience if they will adhere strictly to the letter of the law regarding this particular item.

During this very session of the Legislature we were successful in getting an amendment to the Medical Practice Act which we feel should be very helpful to the Board in the handling of certain matters that have heretofore given the previous Boards considerable difficulty. I refer directly to the amendment of the Practice Act which directly prevents an appeal from the decision of the Board of Medical Examiners upon the revocation of license. The members of this Board have certain matters pending before them at the present time but we have felt that perhaps final action on them should be held in abeyance for the time being as a matter of expediency.

We want to take this opportunity to thank the Secretary of the previous Board, Dr. MacConnell for his many helpful suggestions and sound advice. We want to thank the President and the Secretary and other prominent members of the Society for their sound advice and wise counsel during the past year. We want to pledge our best efforts to the upbuilding and the safeguarding of the interest of the profession as a whole. We covet your continued interest and your hearty co-operation as we begin the work you have placed upon our shoulders.

Respectfully submitted,

BENJ. J. LAWRENCE, *Secretary-Treasurer.*

REPORT OF RETIRING BOARD OF MEDICAL EXAMINERS

THE FOLLOWING WERE LICENSED BY EXAMINATION JULY 14, 1932

SIR WALTER HOTEL, RALEIGH, N. C.

No.	Name	Address	Preliminary Education	Medical College	Year	Grade
4433	Andrew, John Montgomery	Lexington, N. C., R.F.D. 2	B.S., Davidson Col., 1928; U. of N. C., 2 yrs.	N. Y. U. & Bellevue	1932	87 6/7
4434	Andrew, Lacy Allen, Jr.	P. O. Box 1033, Greensboro, N. C.	U. of N. C., B.S., 1930	Duke University	1932	87 3/7
4435	Ayers, James Salsbury	Forest City, N. C.	B.S., Wake Forest, 1930	Jefferson	1932	91 5/7
4436	Bender, John Alpheus	Box 56, Polloksville, N. C.	B.S. & M.S., U. of N. C.	Harvard	1931	89 4/7
4437	Blackwelder, Robert Guy	Concord, N. C., R.F.D. 5	U. of N. C., 2 yrs.	Med. Col. of Va.	1932	85 5/7
4438	Bonner, John Bryan Havens	Greenville, N. C.	B.S., U. of N. C., 1924	Med. Col. of Va.	1932	88 2/7
4439	Bradford, Wallace Brown	Charlotte, N. C.	B.S., Davidson Col., 1928	Univ. of Penn.	1932	93 5/7
4440	Brawdwell, Leslie Jarrett	Wendell, N. C.	B.A., Trinity Col., 1921	Rush Med. Col.	1932	85 6/7
4441	Bradley, Harold John	Brevard, N. C.	A.B., U. of Iowa, 1929	Univ. of Iowa	1932	85 2/7
4442	Brewer, John Mickle	Kershaw, S. C.	U. of N. C., 1922-1926	Med. Col. of S. C.	1931	88 2/7
4443	Bushby, George Francis	115 S. Ellis St., Salisbury, N. C.	A.B., U. of N. C., 1928	Johns Hopkins	1932	83 2/7
4444	Calder, Royall Mann	Duke Hospital, Durham, N. C.	A.B., U. of Texas, 1925	Johns Hopkins	1929	90 4/7
4445	Caldwell, Lawrence McClure	Newton, N. C.	B.S., Wake Forest; A.M. Duke	Univ. of Penn.	1932	91 2/7
4446	Chambers, Paul Jones	Charlotte, N. C.	U. of Ala., 2 yrs.	Jefferson	1929	83 6/7
4447	Clark, Randolph Lee, Jr.	131 Brevard Rd., Asheville, N. C.	B.S., U. of S. C., 1927	Med. Col. of Va.	1932	90 5/7
4448	Cowper, Roscoe Bennett Gray	218 Hillcrest St., Raleigh, N. C.	B.S., U. of N. C., 1930	Univ. of Penn.	1932	91
4449	Cox, Alexander McNeil	410 E. McCullock St., Greensboro, N. C.	Guilford Col., 3 yrs.	Med. Col. of Va.	1932	81 4/7
4450	Credle, Carroll Spencer	Swan Quarter, N. C.	U. of N. C., 3 2/3 yrs.	Med. Col. of Va.	1932	86 2/7
4451	Davis-Clark, Bertha Margaret	131 Brevard Rd., Asheville, N. C.	U. of N. C., 3 yrs.	Med. Col. of Va.	1932	87 4/7
4452	Dawson, James Nelson	Kinston, N. C.	U. of N. C., 1925-1930	Med. Col. of Va.	1932	85
4453	Dula, Frederick Mast	Lenoir, N. C.	A.B., U. of N. C., 1922; M.A., U. of N. C., 1923	Vanderbilt	1932	96 3/7

THE FOLLOWING WERE LICENSED BY ENDORSEMENT OF CREDENTIALS
JUNE 20, 1932
SIR WALTER HOTEL, RALEIGH, N. C.

No.	Name	Address	Preliminary Education	Medical College	Year	End.
4421	Adams, James Robert	Nalle Clinic, Charlotte, N. C.	Univ. of Va., 2 yrs.	Univ. of Va.	1928	Mo.
4422	Angel, Edgar	Franklin, N. C.	U. of N. C., 2 yrs.	Jefferson	1928	Penn.
4423	Autenreith, William Clifford	134 Hillside St., Asheville, N. C.	High School	Univ. of Penn.	1910	Penn.
4424	Byrnes, Thomas Henderson	Watts Hospital, Durham, N. C.	B.S., Clemson Col., 1927	Med. Coll. of S. C.	1926	S. C.
4425	Craven, Erle Buila, Jr.	Duke Hospital, Durham, N. C.	A.B., Duke, 1925	Johns Hopkins	1929	Md.
4426	Cunningham, Charles Edward	Brevard, N. C.	B.S., Davidson Col., 1922	Johns Hopkins	1928	Md.
4427	Dodge, Eva Francette	426 Nissen Bldg., Winston-Salem, N. C.	A.B., Ohio Wesleyan U., 1919	Univ. of Md.	1925	Nat. Board
4428	Fearrington, James Cornelius Pass	Box 820, Winston-Salem, N. C.	A.B., U. of N. C., 1925	Rush Med. Col.	1930	Ill.
4429	Gardner, Clarence Ellsworth, Jr.	Duke Hospital, Durham, N. C.	A.B., Whittenberg Col., 1924	Johns Hopkins	1928	Md.
4430	Harper, Charles Wilson	Kings Mountain, N. C.	Univ. of Florida	Univ. of Ga.	1914	Ga.
4431	Hunter, John Baldwin	3640 Brown St., Flushing, N. Y.	B.S., Davidson Col., 1924	N. Y. U. & Bellevue	1928	N. Y.
4432	Skurkay, John Bernard	329 Pearson Drive, Asheville, N. C.	B.S., Penn. State Col., 1921	Jeffefferson	1924	Penn.

BACTERIOLOGY, PATHOLOGY, AND HISTOLOGY

By Paul H. Ringer, M. D.
Asheville, N. C.

1. Name three (3) diseases from which every child and adult should be protected, and describe in detail the method of protection in each case.
2. Describe: (a) A method of staining sputum for tubercle bacilli.
   (b) The Gram stain, and mention the most important organisms that are "gram-negative," defining the meaning of this term.
3. Discuss briefly the subject of yeast infections.
4. Give the best classification you know of, of the various forms of Nephritis.
5. Describe in detail the life-history of a tubercle.
6. Describe the microscopic appearance of:
   (a) Emphysema.
   (b) Fatty Cirrhosis of the liver.
   (c) Melano-Sarcoma.

Note: Cedit given for satisfactory drawings.

7. Describe the microscopic anatomy of any form of Nephritis that you may select: stating at the outset the form you are about to describe.

Note: Credit given for satisfactory drawings.

8. Describe fairly well the pathological changes taking place in the body as a result of hypertensions.
9. Describe histologically a peripheral nerve from its spinal origin to its pepheral termination.
10. Give the histological characteristics of the spleen.

ANATOMY AND EMBRYOLOGY

By W. W. Dawson, M. D.
Grifton, N. C.

1. Of what does the ectoderm consist? What tissues of the body are derived from it?
2. Describe the clavicle.
3. Give origin, insertion, blood, and nerve supply of the biceps bracchii muscle.
4. Describe the shoulder joint.
5. Give origin and distribution of first or olfactory nerve.
6. Name the contents of the right illiac region.
7. Describe the portal system.
8. Describe the cardiac cycle, and action of valves; name valves of the heart.
9. Mention the boundaries of the popliteal space; name the contents.
10. Give the anatomic relations of the pancreas.

EXAMINATION IN SURGERY

By Foy Roberson, M. D.
Durham, N. C.

Interpretation is part of the examination.

Do not ask any questions.

Write plainly—make answers concise.

1. (a) What is Cancer?
   (b) What is your idea of the etiology and the treatment of Cancer in general?
   (c) What are the Early symptoms of Cancer of the Breast, the Lip, Cervix Uteri?
2. What are the Early symptoms of acute Appendicitis? What is the treatment? Differentiate acute Appendicitis from acute Pyelitis.
3. What are the Early symptoms of Intestinal Obstruction? What is the treatment? Differentiate Intestinal Obstruction from Perforated Duodenal Ulcer in the early stages of both.
4. How would you handle a compound fracture of the Tibia and Fibula—middle third?
5. Give etiology, symptoms and treatment of Tetanus or Lock-Jaw.
6. What is Goitre? Give a classification of Goitres. Give the pathology of each type.
7. What are the Early symptoms of Renal Tuberculosis? How would you make the diagnosis? What is the treatment?
8. (a) What is a Fracture?
   (b) What is a Dislocation?
   (c) How do the symptoms differ in general?
9. Describe end-to-end Intestinal Anastomosis—any method. How would you prepare your hands and arms and the operative field for an abdominal operation?
10. (a) What is Pyemia?
    (b) What is Septicæmia?
    (c) What is Gangrene?
    (d) What is Necrosis?

EXAMINATION IN CHEMISTRY, PHYSIOLOGY, AND HYGIENE

T. W. M. Long, M. D.
Roanoke Rapids, N. C.
June 18, 1930, 9:00 A. M.

1. What substances may be formed from tyrosine within the body?
2. Discuss the mechanism of the absorption of fat from the digestive tract.
3. Name ten organic constituents of blood.
4. By what mechanism is the sugar percentage of the blood controlled in man?
5. Explain the factors involved in the production of thirst.
6. Outline current views concerning functions of the pituitary body.
7. What are the physiological effects of a dietetic deficiency of vitamine "A"?
8. Give the epidemiology of Undulant Fever.
9. State briefly main factors to consider involving health of textile workers.
10. State briefly the relationship that should exist between a local department of health and the practicing physician.

EXAMINATION IN PRACTICE OF MEDICINE

By J. K. Pepper, M. D.
Winston-Salem, N. C.

1. Of what clinical diagnostic value is:
   (a) Increased respiratary rate.
   (b) The pupillary reflex.
   (c) Hæmoglobin estimation.
   (d) Indicanuria.

2. Discuss briefly your treatment of chronic constipation.
3. In what diseases would you prescribe an antitoxin? State dosage and method of administration.
4. (a) Name some diseases in which hypotension is a prominent symptom.
   (b) Differentiate renal glycosuria from diabetes mellitus.
5. Give the symptoms and physical signs of acute aortitis and state the principal points of difference from:
   (a) Angina pectoris.
   (b) Aortic anaurysm.
   (c) Aortic insufficiency.
6. Name five diseases in which hemorrhage may be a troublesome complication and describe your treatment of one of these diseases.
7. What diagnostic or therapeutic indications would prompt the use of spinal puncture?
8. Describe the usual symptoms and blood picture of acute Leukemia.
9. Describe the usual onset, clinical course and prognosis of acute poliomyelitis.
10. (a) Diagnosis infantile pyloric stenosis.
    (b) What are the complications and duration of contagion of:
        1. Mumps.
        2. Measles.
        3. Whooping Cough.
        4. Scarlet Fever.

EXAMINATION IN OBSTETRICS, GYNECOLOGY AND PEDIATRICS

Dr. W. Houston Moore
Wilmington, N. C.

1. How would you positively diagnose pregnancy at the sixth week?
2. How would you deliver a transverse position with the arm protruding through the cervix?
3. What are the positive indications for:
   (a) Cæsarean section.
   (b) For use of forceps.
4. What is kraurosis vulvae? Give symptoms and a very brief outline of treatment.
5. Give differential diagnosis between pyosalpyngitis and ovarian cyst.
6. What are the various gynecological conditions which would justify one in opening the abdomen? Be specific.
7. What do the following tests indicate?
   (a) Dick Test.
   (b) Schick Test.
   (c) Von Pirquet Test.
   (d) Intradermal Tuberculin Test.
   (e) Wasserman Test.
8. Give the advantages of lactic acid milk over sweet milk and explain the reasons therefor.
9. What are meant by the terms active immunity and passive immunity?
10. (a) Give indications for the induction of premature labor and mention methods for same. Be brief.
    (b) Give diagnosis and treatment of prolapse of the uterus.
    (c) What is anaphylaxis? What is serum sickness?

EXAMINATION IN MATERIA MEDICA, PHARMACOLOGY, AND THERAPEUTICS

JOHN W. MACCONNELL, M. D.
Davidson, N. C.

June 18th, 1931, 9 A. M.

1. Define and give example of each of the following: Cholagogue, Demulcent, Emetic, Diaphoretic, Hypnotic, Mydriatic, Myotic, Oxytoxic, Anthelmintic, and Sialagogue.
2. Give origin and therapeutic usages of the following: Agar, Amylum, Arsenum, Cannabis, Resorcinol, Linum, Phenol, Cuprum.
3. From what is Cocaine made? What is Procain or Novocaine? Describe the physiological action of each and tell when each is indicated as the local Anesthetic of choice.
4. Give source, physiological action and therapeutics of Hyoscyamus.
5. Give source, Official Preparations, physiological action and therapeutics of Iodine.
6. Give a short summary of the Federal Statutes relative to prescribing Opium and its derivatives and Alcohol and other habit forming drugs.
7. Outline your Medicinal treatment for Chronic Malaria, (any type) and write the necessary prescriptions.
8. From what plants and from what parts of the plant are the following derived? Aconite, Hydrastis, Opium, Condurango, Squill, Ergot, Quassia, Camphor, Veratrum.
9. What is Insulin, what is its physiological action? Is it a Cure for anything? How do you establish the dosage?
10. Write the following prescriptions in English:

    Recipe;

    Sennae semi-unciam
    Magnesii sulphatis
    Mannae, ana unciam unam
    Foeniculi, drachmam unam
    Aquae Bullientis fluiduncis octo
    Macera per horam in vase clauso, deinde cola

    Signetur; A wineglassful every four hours until it operates.

PRESIDENT WRIGHT: Gentlemen: You have heard this report. What do you wish to do with it?

. . . It was accepted as read . . .

PRESIDENT WRIGHT: Next is the report from the House of Delegates.

SECRETARY DR. MCBRAYER: Mr. President: The report of the House of Delegates I have in my hands. It has just been read, and you have heard it, and I move its approval. See page....., House of Delegates.

. . . The motion was seconded and carried . . .

PRESIDENT WRIGHT: The next item on the program is installation of officers for 1933 and '34.

Before we do that, I want to sing my little swan song.

Being President of the North Carolina Medical Society is too big a job for one man to do, and the responsibilities are getting heavier and heavier. And I have heard it said all my life that the Lord takes care of fools and idiots, and I have been well cared for during this year—well cared for. I do not think that the North Carolina Medical Society has ever had a President who has had the amount of good will and good advice and co-operation that I have had, certainly no one could have had more.

Now, I say that advisedly. To my right here (referring to Dr. McBrayer) is the man that loves the medical profession better than anybody else in North Carolina, and I don't care how good they love it. He is a past President. He knows the duties from experience and the responsibilities of being President. He has been Secretary, and he is a great guy to tell you what ought to be done and then to take orders from you to see that it is done. I think that is a wonderful gift.

One who has never been in contact with the enormity of the great responsibility and work of keeping a cohesive organization together, can't conceive until we get into the midst of the conflict just how enormous it is, and without help, we would make some awful blunders. As it is we make some. And living in the town with me, another past President and another man that loves the medical profession (referring to Dr. H. A. Royster), and another man that has risen above self-desires and self-aggrandizement, that is willing to make a sacrifice, and that has done it for the good of the health of this state, a man who has left his home and a happy family and his personal interests at a financial loss, and lived in hotels and cafes and Greek restaurants and travelled all hours of the night, for the specific purpose of being a servant to North Carolina (referring to Dr. J. M. Parrott)—has been at my command in season and out of season, day and night, to counsel with me. And when I was afraid to go by myself, to go with me. And if I hesitated, to take me. And you know, a man of that type is a rare bird, and this is a red bird; but his name is Parrott. (Applause)

And just a short distance, the man that has taught lots of us, that has studied and counselled, and knows how to impart knowledge into young stupid country boys' heads and make them scientific, workable timber in the organization of medicine, who is to succeed me (referring to Dr. I. H. Manning), has also been at my command. And with these gathered around me, and then added to that, the most loyal county society that any President ever had, with every single man in it going his full limit to make my administration a success, if it was, and that is the Wake County Medical Society.

I just felt that I had to say these few words as to why a fellow could get out and work with all of that co-operation behind him, and he would be a sorry kind not to.

Now, Dr. Parrott, if you will bring forward Dr. Manning, we will let him take the chair. (The members rose and applauded as President-elect Dr. I. H. Manning was installed into the office of President.)

THE PRESIDENT, DR. I. H. MANNING: I hope very much that I am not going to do violence to any customs of the occasion, but I would do violence to my own feelings if I did not express my appreciation to the members of this Society for the great honor that they have done me.

I do not recall at any moment in any flash of ambition that I have ever had, that I could see myself President of the Medical Society of the State of North Carolina, the potential leadership of as fine a group of professional men as exists in this or any other state.

I would have been unmindful of my obligations had I not taken advantage of this interim of a year to study the conditions of our times as they affect the profession of medicine, and more particularly, the membership of this Society. I have listened in on the deliberations of the Executive Committee, and at the conferences between Dr. Wright and Dr. McBrayer, and I confess to you that already my knees have begun to shake, and all the more since Dr. Wright has said what he had to say tonight. I have concluded that if I can do the job half so well as Dr. Wright has done it, if I can grasp the significance of the approaching events and existing conditions and judge them with the sound judgment and courage, with his courage, I shall feel that my labors have not been in vain.

I would not have the courage to begin so ambitious a career did I not feel the strong arm of Dr. McBrayer to support me. And I am sure I voice the feeling of all past Presidents of this Society, and the hope, I may add, of all future Presidents of this Society, when I say in all reverence—thank God for Dr. McBrayer. (Applause)

As I have attempted to study the problems of the profession I have reached the conclusion that medical organization is a medical specialty and its problems demand the training and experience of an expert in their proper and final solution. There has never been a time when there has been more serious problems confronting the medical profession. I believe this is true of all professions and that each one has essentially the same problems, growing out of the same social, financial, industrial and political conditions.

A CHALLENGE TO THE MEDICAL PROFESSION

(Inaugural Address)

By PRESIDENT I. H. MANNING, M.D., Chapel Hill

This is an era of economic organization. Physical disability, sickness and death are looked upon as economic losses which are to be calculated in dollars and cents, and are therefore factors for serious consideration in industrial organizations. It is becoming more and more the policy of

large employing organizations to provide medical service. From the earliest times this has been the practice of the Army and Navy, but it has now been extended to those who have ever served in the Army and Navy in any capacity, and will be eventually extended to their families and dependents. In this connection let me quote from a recent article by Dr. Ray Lyman Wilbur who, in spite of his political escapades, has great influence in medical affairs:

"The impulse of our people to do everything possible for those who had offered their lives in the service of their country was directed into the construction of new hospitals for veterans in various parts of the country. * * * With enormous wealth at hand, there was an exuberant mush-room growth of veterans' hospitals and as exuberant a growth of legislation, opening the doors of these hospitals to more and more classes of patients. * * * At the end of a given time there will be thousands of empty beds with a constant invitation for our legislators to devise methods of filling them at public expense." I do not doubt that medical service will be eventually extended to all governmental employees.

The railroads for many years have offered a limited medical service to employees injured in their service. Some of them have provided complete medical service, including hospitalization, on a co-operative insurance plan. Large industrial organizations of all kinds, lumber camps, manufacturing enterprises, department stores are provided medical service from first aids to complete service without apparent cost to the employees. Finally, fraternal societies, labor unions, insurance companies, hospitals and groups of doctors are offering medical service at reduced rates on the installment plan,—that is by making monthly payments of 75c to $2.00, depending upon the character of the service. And finally the government is offering free medical service to the unemployed without cost to itself.

In every instance (except the last) medical service is provided under some sort of a contract. In the Army and Navy there is the full-time medical officer, with rank and salary. In large organizations there is also full time and salary, while in smaller organizations there is a part-time contract on a fee basis. In the clinics which have been so successful in the West, full time with salary is the common practice. The economic advantages of such arrangements to all parties concerned, to the organization, to the people served and to the doctors employed have been demonstrated. A large number of people may be given medical service by relatively few physicians at a very low per capita cost. While this plan has been successfully applied to communities in which there are large groups living at relatively low wage levels, there is every reason to believe that it will be successfully extended to groups with higher salaries and by enterprising lay and professional organizations to small communities, with varying types of medical service.

One of the obvious results of such economic organization as is now going on with increasing momentum is the increasingly large proportion

of the population who have been, or will be removed from the field of competitive practice. The independent practitioner is functioning in a field that is growing progressively smaller and is threatened with extinction by economic forces which, individually, he is unable to control or combat. There was never a time when the future of medical practice seemed more clouded nor the challenge to organized medicine more insistent than now.

If the profession is to survive as a profession it is fundamental that the individual responsibility of the physician to the patient, the privilege of practicing medicine to the best of his knowledge and skill, and receiving the rewards therefrom, rewards which are, let me emphasize, both spiritual and material, must be preserved. Group and contract practice may not be unethical, but insofar as they eliminate individual responsibility and remove the stimulus to high effort and the hope of commensurate reward, they are subversive of the best interests of the profession. Economic advantage carries with it the implication of commercial competition and sinks the profession to the level of a trade union.

The problem confronting the profession is not to set up a bloc to the trend of economic and social forces but to guide and direct them to the accomplishment of a rational program of medical service to the people with the preservation of the traditions and ideals of the profession. The objective is an adequate medical service to all people rendered by a competent, independent and self-respecting profession. With this program the profession is in entire accord. Adequate service, however, does not mean equal or free service. Equality is a dream, an hallucination, and the talk about it is political ballyhoo. Much that has been said recently about the lack of medical care is a gross exaggeration. The indigent do not get the medical attention, the "entertainment and flattery," given to the millionaires, but they are not grossly neglected by the medical profession. They do not live in the lap of luxury, in any respect.

There is perhaps more to be said for the strata above the indigent,—that is the mass in the lower income levels for whom the insurance, the installment and other economic plans for medical service are designed. We should also foresee that this group will include higher and higher income levels. Therefore, the progressively increasing proportion of the population included in this group and their exclusion from the field of competitive practice is the immediate problem of the profession. In case of the injured employee the machinery for medical service is set up in the Industrial Commission in which there is already a tendency to limit the choice of the patient. This is, however, only a small part of the medical service required.

The solution of the largest problem—the case of the families, or the dependents of the employed—resolves itself into recognition of two fundamental principles: first, the ability to pay for medical service and, second, the right of the patient to choose his or her own doctor. The ability to pay is obviously fixed by the income level or the financial

status of the patient and a scale of fees based on the income of the patient, supplemented in case of very low incomes by funds from other sources, is one obvious solution. From the point of view of the practicing physician the fixed scale of fees has much to commend it. There is no essential difference in the pathology of the prince and the pauper. Manifestly, however, the problem of paying for the doctor's visit is very different. When the choice lies between the dinner pail and the doctor's visit, the dinner pail usually wins. The failure to recognize this difference has forced the provision for medical service in industrial organizations and is the *casus belli* of the public welfare economists. A frank recognition of this principle by the general practitioner, as has been done by many specialists, will go far towards eliminating the contract and re-establishing the traditional relationship between the general practitioner and the public. A scale of fees with sufficient flexibility to meet the economic exigencies of industrial organization will restore the right of the patient to choose his or her doctor, which is in the interest of both. The practicing physicians are in competition with economic industrial organization.

The good of the profession demands that this problem be solved by the profession and not by self-appointed lay or quasi-medical groups. The rules and regulations governing the practice of medicine, if there are to be rules and regulations, should be set up by the County Medical Society in the domain of which medical and economic conditions are fairly uniform and no one knows them better than the doctors.

The County Medical Society is the unit of the medical organization, of the American Medical Association, the largest association of medical men in the world. When the County Medical Society functions as a unit, as it should, when it assumes responsibility for and leadership in the medical affairs of the county in matters of public health, in the examination of the delinquent indigent school children, in the care of the indigent and unemployed, and in the many problems with which the profession and the public are concerned, a tremendous advance in the medical affairs of the counties and the medical society will have been made.

On the other hand, the public should learn that the "medical laborer is worthy of his hire," something that the public has never learned and probably is not willing to learn. Free medical service to the indigent, unemployed or the improvident is not an obligation of the medical profession, but an obligation of the community, of organized society and represented by governmental units. Is it unreasonable to suggest—in fact to insist that the state allocate a reasonable sum from the appropriations for Public Education or Public Health for the medical examination and care of the delinquent, indigent child? Or for the doctor to present the county or town commissioners with a bill for medical service based on a scale of fees approved by the County Medical Society? After so many years, of, I might say, the traditional gratuitous medical service to the

public there are obvious and doubtless familiar difficulties, but the County Medical Society representing the unified profession of the county will be able to bring strong pressure to bear on political and social organizations. The first essential to the success of organized effort is a united profession. Anything less than wholehearted co-operation is fatal.

The solution of this and similar problems is complicated by the fear of "state medicine" which has become an obsession with the profession. The danger of state medicine to the profession, and perhaps I may add to the state, lies, first in the contract between the state and the doctor which, as with industry, is purely a matter of economic organization and which can be eliminated by a flexible scale of fees and the right of the patient to choose his or her own doctor, and, second, in the abuse of the state which can be eliminated by square dealing on the part of all parties concerned.

President Manning: I will ask Dr. Stokes to present Dr. P. P. McCain, President-elect, and Dr. Phelps and Dr. H. D. Walker, the newly-elected Vice-Presidents of the Society. (Applause) I have other strong arms. With Dr. McCain, Dr. Phelps and Dr. Walker I am fortified. (Applause)

Dr. McCain: I wish to express to this Society my profoundest gratitude for the honor that has been conferred upon me. I believe it is one of the greatest medical societies in the country, and I want you to know how much I appreciate it.

Dr. Phelps: Mr. President and Gentlemen of the Medical Society of the State of North Carolina: I desire to express my pleasure in receiving the honor of First Vice-President to serve with such eminent men as Dr. Manning and Dr. McCain.

I thank you. (Applause)

President Manning: Dr. McBrayer wants to make an announcement.

Secretary Dr. McBrayer: Mr. President and Gentlemen: I just wanted to announce to you that notwithstanding the depression that has been just around the corner, we have had registered 713 physicians in attendance here at this meeting, which I think is going pretty good. Outside of the meeting at Winston-Salem when we had 740, it is the largest attendance we have ever had. The year before at Durham being a very close third. I think we have a right to congratulate ourselves.

I do want to say this, too, that I think that this meeting has been one of the best of the many that I have attended, and I want to personally express my appreciation to the Wake County Medical Society, with Dr. Caviness as Chairman of the Committee of Arrangements, and the many other men, in fact, I think all of them, that have helped to make this one of the most pleasant and one of the best meetings of this Society we have ever had. (Applause)

The President suggests we ought to give a vote of thanks, and I, therefore, move that our appreciation is hereby extended to the Wake County Medical Society for their many, many kindnesses during this meeting.

. . . The motion was seconded and carried by a rising vote . . .

Dr. Parrott: Mr. President: During these meetings I have noted the absence of four members who have been very constant in their attendance—Dr. L. A. Crowell of Lincolnton, Dr. Thomas E. Anderson of Statesville, and our dear old friend, Dr. A. Y. Linville of Winston, who has been here many years, and Dr. A. W. Knox, of Raleigh. There may be others.

I move, Mr. President, that the Secretary be requested and instructed to wire our sympathy to Dr. Linville and Dr. Anderson and Dr. Crowell and give them our expressions of love and regret at their inability to attend, and hope they will be with us next year; and Dr. H. A. Royster to be specifically delegated and requested to visit Dr. Knox and in person express to him our deep regret at his inability to be present.

. . . The motion was duly seconded and carried . . .

President-elect Manning: The Chair will now entertain a motion to adjourn.

Dr. Lawrence: I assure you I will not keep you more than a moment. I will not press down on you a crown of thorns from my faltering lips after all the splendid things you have heard from these splendid speakers during this meeting.

But I would not be true to my inner soul if I let you go home without emphasizing one point that I feel is a buttressing form to the future of medicine in North Carolina, and especially the North Carolina Medical Society.

You have heard on various occasions since you came here Monday—in fact, it is on the tongue of most every man that has spoken—you have heard about the future of our profession. You have heard the illustrious address of the President yesterday morning, in which he warned us. You heard the eloquent Jim Parrott this morning as he sang of Plato and Demosthenes. He spoke of the future of medicine in North Carolina.

I feel that we cannot over-emphasize the importance of the medical profession in North Carolina waking up to the fact that if we are going to preserve our home, we must become interested in the North Carolina legislature. I say that out of the depths of my soul, after having been literally baptized for three long months, having done my dead level best and accomplished but little.

I want to apologize for making these remarks at this time. I wanted to say something of this sort Monday night, but the session was so long and the hour was so late, I was forced to abandon the idea.

I want to say to you that it is my humble opinion, after having lived with the members of this legislature and with previous legislatures, that

the North Carolina State Medical Society and its doctors, will never get the proper legislation or the proper consideration at the hands of the legislature in North Carolina until its membership is willing to make the sacrifice of leaving their practices and going to that legislature as members, not as diplomats, not as pleaders, asking for something, but with authority from their constituents in the various counties, with the power of the vote.

I say that by way of apology to our President. I want to emphasize his words when he said there are just two things in my humble judgment that are most needed in our profession in North Carolina. One is unison in our own profession. I believe he said without unity we must fail, and I heartily endorse that from the top of my head to the soles of my feet. And I will add to that that we must make a real and genuine effort, begin to think about it now, and two years from now see to it that we have at least five to ten of the most stalwart members of our profession in each branch of that assembly up yonder. If we do not do that, gentlemen, we will feel the results of it, and we will drink with bitterness and sadness the result of that failure to foster medicine to the great benefit of our people and ourselves. (Applause)

President Manning: If there is no further business, I will entertain a motion for adjournment.

. . . A motion to adjourn was made, seconded and carried, and the 80th meeting of the Medical Society of the State of North Carolina adjourned sine die at 9:15 o'clock P. M. . . .

CONJOINT SESSION

OF THE

Medical Society of the State of North Carolina

AND THE

North Carolina State Board of Health

WEDNESDAY, APRIL 19, 1933, 12 M.

The Conjoint Session convened at 12:00 M., in the Ball Room of the Hotel Sir Walter, Dr. J. T. Burrus, President of the State Board of Health, presiding.

CHAIRMAN BURRUS: Gentlemen, the Conjoint Session of the North Carolina Medical Society and the North Carolina Board of Health will now come to order. I invite your attention for a little while to the report of the Secretary and State Health Officer, Dr. J. M. Parrott of Kinston and Raleigh.

ANNUAL REPORT NORTH CAROLINA STATE BOARD OF HEALTH TO CONJOINT SESSION STATE MEDICAL SOCIETY

April 19, 1933

By JAMES M. PARROTT
Secretary and State Health Officer

In obedience to the mandates of law and custom, I have the honor to present my report for the year ending April 1, 1933, to the Conjoint Session.

The biennial report of this department, a copy of which many of you have and which each of you may obtain for the asking, contains much interesting and more or less complete data concerning the history of the Board, its services and policies.

The Division of Preventive Medicine continues to be directed, and too, with his usual efficiency and satisfaction, by Dr. G. M. Cooper. Dr. Cooper is leading the annual immunization campaign against diphtheria this year. During this time he is utilizing his six regular staff nurses, who are assigned to special activities of an organizing, teaching and inspirational character in counties having no form or pretense of health service.

I believe we are justified in pointing with increasing pride to the improvement in the Health Bulletin. The demands for this publication are steadily increasing, particularly in the schools.

I am happy to report, largely because of the efforts of this division, that the infant death rate for 1932 was 66.1 per 1,000 live births, this being more than six points lower than any year since the vital statistics records have been kept.

No doubt as a result of several years' educational work, the death rate from pellagra for 1932 was lower than in any year since 1926. It is a source of pride that this Division of the Department of Health originated and began the program which is now called the "Live-at-Home" campaign. This has been the means of a definite reduction in illness and has materially helped our economic situation.

During the year, the Division of Preventive Medicine has given much time to improving the efficiency of midwives. An effort was made to secure the passage of an act by this General Assembly looking toward better regulations of this service. Unfortunately, this bill was defeated, largely because of a misunderstanding on the part of a number of legislators. The Division, however, has recourse to rules and regulations under county authorities and efforts will continue unabated in that direction, subject only to the limits of proper assistance, which in turn, is limited by scarcity of available funds.

Public Health will have to realize that it is more and more dependent on Education, and with this fundamental idea in view, the Division of Preventive Medicine will continue to press with increasing vigor its educational program. Right now we are dreaming of that great time for North Carolina when our people will think subconsciously in terms of health, and when mothers learn to carry their children routinely to their physicians and dentists for immunization and preventive service.

The Division of Sanitary Engineering continues under the efficient direction of Mr. Warren H. Booker. It is a never-ending source of surprise that this service can be carried on so well for so little money. As is well known, its scope includes all non-medical activities of the Department of Health, embracing among other things, water supplies, sewage disposals, milk, shellfish, school, rural and industrial sanitation, general and specific advice to all state departments and state-owned or directed institutions, and hotel, cafe, summer camp and bedding and privy service.

The design of the privy recommended by the Division has been simplified and cheapened. We now have better plans for sewage treatment plants for families, small institutions, and communities up to 500 population, than most any other state.

A special drive has been made to improve the sanitation of jails, prison camps, and state institutions, as required by law.

The most outstanding piece of work accomplished during the period under consideration was the bringing to many sections of the state a milk supply of a higher quality and of a more sanitary type. North Carolina has more towns and cities operating under the U. S. Public Health Service Milk Ordinance than any other state except Texas. We believe

that we have better designed plans for sanitation of dairies than most any State Health Department in the country.

During last fall a detailed sanitary survey was made of all our mountain country and the immediate and remote approaches to the national park. Data obtained is valuable and will be of much assistance in developing western North Carolina. Lack of funds has prevented our following-up the survey as closely as we had anticipated.

We have not been able to extend our sanitary survey activities to the playgrounds on the coast, but we hope to get to them early in the summer.

The people of North Carolina badly need the benefit of tourist business. The department is determined to do its full duty in this respect.

In response to the increasing demand of industries, individuals, and communities for a more thorough and intelligent mosquito control, the Board is undertaking to provide special expert service for this purpose. Through the courtesy of the Rockefeller Foundation, one of our junior sanitary engineers has had an intensive training in one of the best mosquito control laboratories in this country located in Florida. His services and advice are now available to all.

The Division of Oral Hygiene continues under the direction of that remarkable man, Ernest A. Branch, D.D.S. The service is extensive and is very superior. In a great way the dentists are teaching the relation of an unclean mouth to systemic disease, didactically in the classroom, and through demonstration. The work will be completed more or less satisfactorily in about sixty counties during the school year.

This Division at times plays an important part in the control of transmissible diseases.

It would be difficult indeed to estimate the public health value of this activity. Dentists and the dental profession are supporting health work with increasing loyalty and efficiency.

The Division of Epidemiology, County Health Work and Vital Statistics. Directed by Dr. Hamilton, these services have consistently and progressively improved in spite of many handicaps and a constant lessening of available funds. Forty-four counties have some form of county health work. A definite effort has been and is being made to improve the character of this type of service. The lack of personnel sufficiently trained, plus insufficient funds, plus a misunderstanding on the part of the public, and in many instances of the medical profession, as to the scope of public health work has materially retarded county health activity and its expansion and development.

We are now allocating to county health units approximately $85,000.00 in cash annually. I am deeply, yea, very deeply, pained to announce that this will have to be materially, even drastically reduced because of insufficient funds.

Dr. Mark V. Ziegler, who has been with us through the courtesy of the U. S. Public Health Service since October 1931, renders valuable assistance, particularly in our county health activities. However, his broad grasp of Public Health in all its ramifications is very helpful in every department. For his wise counsel we are indeed grateful.

Dr. D. F. Milam, charming gentleman as well as learned scientist, continues with us and is rendering valuable assistance in the Division of Epidemiology. All the morbidity reports from all the physicians in the state converge in this service. A trained observer can take reports of sickness, even in their incompleteness, and from them read the signs of impending epidemics. This watchfulness is a function of the State Department of Health. It can and does do much to limit the extent of transmissible diseases.

Recently we issued a booklet containing a summary of reports of communicable diseases for the fifteen years since reporting was established in this state. This booklet, together with the current weekly reports of morbidity and the yearly mortality report of the Board, has placed in the hands of physicians much worthwhile information regarding disease conditions in the state.

The report of the Division of Vital Statistics, while shorter than usual, is perhaps more illuminating and more valuable than ever before.

This service is being worked over, modernized, and its information made more easily available.

I am happy to report a continued fall in the death rate in North Carolina. We now have the lowest of any state save perhaps three or four. For the first time our death rate is less than ten. Infant mortality has dropped to the lowest point in our history. It is stimulating to compare this present rate of 66.1 to 89.6 in 1915.

You will be pleased to note that while the typhoid death rate in 1915 was nearly 32, it is now approximately 5. Diarrhoea and enteritis was 72.9 in 1915, and is now 17.3. The provisional death rate in North Carolina in 1932, all causes, was 9.6. The provisional rate for all causes exclusive of homicides, suicides, and accidents, over which the Department of Health has no control, was 9 even.

Venereal Diseases. At a meeting of the Board in July, 1932, a special committee was appointed to consider the syphilis problem in North Carolina, and in a remote, collateral sort of way, the entire venereal disease situation. Dr. Grady Dixon of Ayden, a member of the Board, was designated Chairman of the committee. Dr. Dixon has thrown himself into this service in a commendable way and has given freely and unstintedly of his time and ability to studying the problem, and without cost to the state.

The Public Health Service has loaned us one of the outstanding syphilographers of this country, William D. Riley, to aid in this work. The committee has formulated certain plans as a result of a careful state-

wide survey. In this study, 685 physicians out of 1,344 who were invited, participated. The doctors did so without charge and with their usual commendable enthusiasm. Lacking their aid the whole plan would have failed. I take this means to express my deep appreciation officially and personally to the profession of North Carolina. They always respond to the call of the state in a great and mighty way.

Laboratory. During the recent year, the Department of Health received its greatest loss in the death of that splendid, cultured Christian gentleman, and learned scientist, and great North Carolinian, Dr. Clarence A. Shore. The legislature took official cognizance of the death of Dr. Shore by passing a resolution designating the Laboratory building as the "Clarence A. Shore State Laboratory of Hygiene Building." This is the first time in the history of the state that such legislative recognition has been given a man of medicine.

Appropriate exercises commemorating this were held yesterday and the program, together with the addresses, will be filed in the permanent archives of the department.

Every possible effort will be made to carry on the Laboratory service on the same high plane as it was during the administration of Dr. Shore. Of course, the profession and the public must recognize the fact that this will be an ideal which will be difficult indeed to attain.

Without consuming too much of your time it is not possible to give a fair summary of the work of the Laboratory. It is rendering a service to the state, which if paid for at present retail prices, would cost the people approximately a million dollars a year. The net appropriation by the state to the Laboratory is $42,618.00 annually.

It has been suggested that all of the departments of the Laboratory, except water analysis, be discontinued in these distressing times. I am positively of the opinion that the closure or further delimiting of the service of the Laboratory would make public health work in North Carolina almost an impossibility. This administration will not lessen the activities of this service without vigorous protest and desperate objections.

The idea has been advanced that the Laboratory should be self-supporting. There are those who disagree with your Secretary and State Health Officer, but it is his opinion that this would be a serious mistake under normal economic conditions; that it would be a tragedy in these years of financial stress to increase the charges for biologics for which we are now charging and to charge for those which we are now distributing free. The people cannot stand this extra expense now and I strongly oppose it.

Our work is even now seriously handicapped because of the fact that we have to charge a small price for diphtheria toxin-antitoxins, toxoids, and antitoxins and for anti-rabies vaccines and tetanus antitoxin.

We have already noted a decided decrease in immunizations against diphtheria due, in a large measure, to charges which we are forced to

make for toxoids and antitoxins. To increase the price or to charge for other immunization biologics would definitely and certainly cause a rise in death rate and morbidity in the commonwealth.

The Laboratory is rendering a service to the people which is of incalculable and inestimable value. Dark indeed would be that day for our state should the Laboratory be hampered in the least in its activities. It would be difficult to visualize North Carolina without this service.

Instead of decreasing the activities of the Division of Laboratories, the wise, proper and constructive thing for North Carolina to do would be to increase them, and increase them materially.

New Laws. In view of the fact that the 1933 session of the General Assembly has not completed its labors, it is deemed unnecessary and inadvisable to discuss legislation which it has passed or may pass affecting directly the Health Department.

Reporting. It is believed by us that thoroughness in reporting diseases is increasing. However, frankness impels me to say that it is not as complete as it should be. I take this opportunity to request the physicians in the state to report as promptly and as accurately as possible. I know the doctors are interested and anxious to help. We appreciate it. Reporting transmissible diseases is an important matter to the physicians, the dentists, and our service.

Departments of Health Practice. I am sure that even the casual observer has noticed and has appreciated the remarkable development of public health practices throughout the world and particularly in North Carolina in the recent twenty years.

It would be interesting to review the development and trend of public health work. Someone has well stated that "early health practices were born of fear and hope—fear of yellow fever, typhus fever, and smallpox, and hope that rigid quarantine and isolation would stamp out disease epidemics," and thus we developed the era of shotgun quarantine. This proved an idle dream and vanished before the inexorable law of experience.

With the discovery of disease-producing organisms, the idea became universal that the control of transmissible diseases could be effected by way of disinfection. This proved, in part, a delusion. There were many failures due largely to the fact that we overlooked carriers, and that many cases were not reported.

The next step in the progress of public health was in the field of education. It is the most powerful permanent public health agency. It is a slow process, to be sure. It must be extensively followed. Nevertheless, when the public is thoroughly educated, a result is obtained which is of the greatest value.

The recognition of the value of education was a logical step to the next development, the Promotion and Conservation of health. This necessitated the correlation of the activities of professional and non-professional agencies.

The Promotion and Conservation of health has brought us to that period when we are thinking not only in terms of fewer deaths but of lowered morbidity, and even more important than these, increasing the efficiency and the happiness of the individual.

In the development of public health practices, we have reached the point when it must be considered essentially as a specialty in medicine, and those who practice it specialists. A few years ago we thought any physician was qualified to handle public health work. The knowledge of modern sanitation has broadened and extended, and modern preventive medicine, together with all that this means, has made it impossible for one to practice public health satisfactorily without extended special training and properly guided experience. Hit-or-miss methods have no place in modern health work.

It must be definitely understood that the general practitioner is the basis of public health work and is the most valuable of all its agencies. There will never come a time when health service is detached from the practice of medicine.

Appropriations. I am sure that you join with me in feeling a deep sense of regret that it has appeared necessary to greatly reduce the appropriations for your Department of Health. While comparisons are usually odious, it is not out of order for me to invite your attention to the fact that the average per capita appropriation of state departments of the United States is 13c, while we are spending less than 8c. It is interesting to note in this connection that our sister state of Virginia spends 17c, South Carolina 10c, and Tennessee 14½c. It is distressing to contemplate the fact that our new appropriation will bring our available funds to less than 7c per capita.

I wonder if you are aware of the fact that of our state tax dollar, 39c is dispensed for debt service, 20c for highways, 4c to eleemosynary institutions and pensions, 4c to other institutions, state and local, and for public health 7/10 of one cent.

I also think in this connection that I should call your attention to the fact that it is now proposed to pay the directors of the divisions of our Department much less than that paid the Superior Court judges and less, even, than to solicitors for twenty-four weeks per year of work; definitely less than that which will be paid the Director of the Department of Purchases and Contracts, less than the salary of the Adjutant General, less than the Chairman of the Industrial Commission. It is unquestionably and undeniably true that more education and technical qualifications are required and the responsibilities of the directors of each of our divisions are easily equal those of the Superior Court judges, and greater than those of solicitors, the Director of the Bureau of Purchases and Contracts, or the Adjutant General.

Trends. The philosophy that all men have the heavenly right to live life more abundantly is in line with the trend of modern civilization. He who thinks otherwise is out of joint with the times.

Centuries ago, the English people wrested from the Crown, the so-called charter of English liberty; this, in effect, was the charter of Property liberty.

The years passed and our forebears challenged the proudest government of the earth and won American freedom; this, in effect, was Political freedom.

Unless I misinterpret current events, we are now engaged in the third great contest for an advancing civilization—the right of man, as above the right of property. Undoubtedly a social order is beginning which conceives human life as unquestionably superior to physical property in any form and which will undoubtedly suppress or radically modify any agency, custom or practice, which does not evaluate humanity as being infinitely above things material.

Clearly the fight is on for human rights. In this struggle, and in its very forefront comes the deep, social, human philosophy on which all public health service is builded, a service which takes more cognizance of the man than of the dollar.

Warning. I am pained at the necessity of reiterating my solemn warning of a year ago that a further reduction in our appropriations would so curtail our service that illness would surely increase.

Because of lack of funds we have been unable to secure the immunization of as many children against diphtheria as should be, and therefore, we may expect an increase in this disease within the next eighteen months or two years.

General sanitation throughout the state is not commendably good. Typhoid fever has begun an upward turn. Whether the trend will be permanent or not remains to be seen. I fear that it will.

The ghosts of more morbidities and mortalities from other diseases stalk us constantly. In the presence of these probable advancements, we find ourselves almost helpless because of insufficient funds.

Diseases of degeneration including cancer, cardiac and renal affections continue to mount. Pneumonia holds its place in the high brackets of the causes of death. Maternal mortality in North Carolina reflects no credit on any civilized state.

While I deeply regret all this, in fact regret it more than I can possibly express, I am a little comforted by the thought that these misfortunes are and will be due to no fault of the Department of Health. Be it known definitely and positively that it is fairly chargeable to the reduction in our appropriation, due and timely notice of which has been given through the press, from the platform and in private conversation.

Challenge. I recall that a year ago, as your State Health Officer, I solemnly promised the taxpayers of North Carolina in all expenditures

to be mindful of their condition. The Department has kept this pledge. The love of our people for us is justified. We are determined to do nothing which will lessen their faith in us. We accept the depression as a challenge. These are fearful times. Fortunes have been dissipated; hopes have been blasted; hearts have been broken; homes wrecked everywhere; and all along the stream of Life suicides have been flung on the shore. Unafraid we go into the fight for North Carolina. Public Health is determined to live through the storm. We are facing it with high hopes and determined purposes. Proudly shall we walk the way of sacrifice because we know that we shall find our Holy Grail in the nobility of our service.

It has been reported that during the battle of Fredericksburg a Federal general succeeded in capturing a strategic point. From this elevation, shot and shell were poured into the Confederate ranks with a decimating and blasting effect. The battle seemed about to be lost. General Lee had flung brigade after brigade against the Federal lines and without success. In one final desperate effort, he called to his side a great North Carolina general and asked him to save the army by taking the Federal lines. The Confederate general stepped in front of his North Carolina troops and said: "Steady! Steady now! North Carolina! Forward!"

He led his troops across the valley and up the storm-swept heights, and when the smoke of carnage had cleared away the Stars and Bars waved in triumph where before waved the Stars and Stripes, and another heroic chapter was written in the history of our great commonwealth.

The Old North State is a mighty state and it will live again. In the morning of its resurrection, which will be the beginning of the day of its renaissance, the Health Department and our physicians will be glorified because they held the state true to its course. We need now more than ever before, and more than anything else, to walk with unfaltering trust and unhesitating tread straight to the altar of our commonwealth and there rededicate our lives and receive a new baptism of love for each other and for our ideals.

North Carolina is the biggest and finest fifty-two thousand square miles on earth. It has a most varied climate, ranging from the semi-tropics of the southeast to the semi-frigid of the northwest. Its soil is as varied as its climate and rich beyond that of any other section of the world. It is strategically located; it is within eighteen hours of sixty per cent of the population of this, the greatest consuming nation on earth. It has more cotton mills than any other state of the Union, and save one, more spindles. It continues to hold the first or second place in many of the prime and basic industries. Within its ample folds it has the best people to be found anywhere. If there are a finer type of negro than those which make up thirty-seven per cent of our population, I have no knowledge of them. Into the veins of our white people there has poured the blood of the intrepid Frenchman, the fighting Irishman, the thrifty Scotchman, the bull-dog Englishman, and the unconquered Teuton, and out of this amal-

gamation there has emerged the very finest type of the human race, a type which appears to be God's most masterful effort in the creation of man.

And it is a land of beauty too. God has studded our arching skies with diamonds from his own jewel box. He has perfumed our flowers with the attar of roses from the Garden of Eden. He has tinted our violets and pansies and hallowed them with a glory which defies all human competition; and He has used up His superabundance of colors in painting the glowing canvas of our west.

Our great past challenges us to renewed efforts and bespeaks a greater future. "Steady! Now, North Carolina!" Be ye not disconsolate, oh! my State. The day will break and we will live again.

CHAIRMAN BURRUS: Gentlemen, the Report of the North Carolina State Health Officer is before you and open for discussion.

. . . There appeared to be no discussion . . .

. . . The Conjoint Session adjourned . . .

SCIENTIFIC SECTIONS

SECTION ON SURGERY

SECTION ON PRACTICE OF MEDICINE

SECTION ON PUBLIC HEALTH AND EDUCATION

SECTION ON PEDIATRICS

SECTION ON EYE, EAR, NOSE AND THROAT

SECTION ON GYNECOLOGY AND OBSTETRICS

SECTION ON SURGERY

TUESDAY, APRIL 18, 1933

The Section meeting convened at 2:40 P. M., in the New Dining Room of the Hotel Sir Walter, Raleigh, N. C., Dr. Harold H. Newman of Salisbury, presiding, in the absence of Dr. Wm. H. Sprunt.

CHAIRMAN NEWMAN: In the absence of Dr. Sprunt, I have been asked to act as Chairman of this Section.

I will appoint on the Committee of Judging Papers:

Dr. J. D. Highsmith, Chairman, Fayetteville, N. C.
Dr. T. C. Johnson, Lumberton, N. C.
Dr. Foy Roberson, Durham, N. C.

The first paper on the program is by Dr. S. W. Davis, of Charlotte.

OXYGEN THERAPY

STEPHEN W. DAVIS, M.D., Charlotte, N. C.

Oxygen Therapy in reality began in 1917 when Haldane and Meltzer observed the favorable results which followed its effective administration. Haldane studied cases of pulmonary edema, the results of war gas, while Meltzer treated patients suffering with pneumonia and reported improvement in some cases.

During the next ten years the physiological principles of oxygen want were reviewed and effective methods of administrating oxygen were brought into the clinic for the first time. This mode of therapy attracted my attention as to its possibilities in surgical and medical cases while a resident in Philadelphia in 1927-29. The physiologic basis for the therapeutic use of oxygen rests on three sets of evidence.

"1. Bancroft, Haldane and others pointed out the harmful effect of acute oxygen want as demonstrated by symptoms of mountain sickness and laboratory experiments, including chambers in which air was arterially deprived of oxygen. Among these effects were cyanosis, rapid pulse rate, disturbances in breathing, nausea, vomiting, slight fever, fatigue, delirium and finally collapse.

"2. My means of arterial puncture (Hurter and Stadie) an accurate method of blood gas analysis (Haldane and van Slyke) it was shown that arterial blood of patients with pneumonia at times contained markedly diminished oxygen content. The degree of arterial unsaturation found in pneumonia was frequently as severe as experimentally induced symptoms noted above.

"3. The administration of 40 to 60% oxygen to patients suffering from acute anoxemia raised the oxygen saturation of arterial blood to or near the normal value. (Stadie, Meakins, Barach, and Binger.[1])"

Shortly after the discovery of oxygen by Priestly in 1744 Thomas Beddeos[2] founded a pneumatic institution at Clifton for the "Treatment of disease by the inhalation of factitious gases." He further reported "Oxygen was found to be beneficial in scrofulous affections, in white swellings, ulcers, chlorosis, dyspepsia, hypochondriasis, melancholia and cephalgia. It was affectatious in dropsy and hydrothorax, nausea, dyspnea and asthma. It was efficient in opium poisoning and advantageous in paralysis. It was valuable in simple exhaustion."

While Beddoes made certain claims that are more or less unfounded by scientific investigation there are several conditions in the above list that have recently been shown to respond to oxygen therapy. Even his claim that oxygen has an advantage in opium poisoning is true to the extent that in the treatment of pneumonia morphine may be administered in larger doses for the relief of pain and an induction for sleep in the treatment of pneumonia than is ordinarily given in the absence of oxygen therapy because of fear of its depressant effect.

During the past few years a number of various conditions aside from pneumonia are being treated with oxygen or carbogen, a mixture of 5 to 7%CO_2 and 95 to 93% oxygen, some authors even using a mixture of 10% carbon dioxide and 90% oxygen.

Time does not permit a greater enumeration of diseases treated with oxygen other than various types of heart disease, such as, congestive cardiac failures in which it has been shown that the favorable effects of residents in atmosphere of 45% oxygen are summarized by Barach[4] as follows.

"1. Marked subjective improvement, decrease of cyanosis, relief of dyspnea, orthopnea and cough.

2. Increase of urinary output and disappearance of edema of gradual onset and usually not reaching its maximum until about the third or fifth day.

3. Increase in arterial oxygen saturation.

4. Sharp rise in carbon dioxide content of arterial blood and CO_2 curve level in high oxygen.

5. Decreased pulmonary ventilation.

6. Lowered pulse rate.

In a very recent article on the treatment of acute coronary occlusion Eugene S. Kilgore[5] advocates the early use of oxygen regardless of apparent indications in the hopes of minimizing tissue necrosis. Ritzer[6] has called attention to the frequency with which pain of coronary occlusion can be relieved by the use of oxygen, which correspondingly diminishes the need of morphine. To quote Kilgore "It should be, but apparently is not, superfluous to add that a modern tent is necessary. In the total absence of cyanosis or dyspnea, I have observed the pain of acute coronary occlusion, uneffected by oxygen administration through a funnel, and still unchanged when the patient was put under an antiquated tent, promptly

and completely relieved with the instillation of a tent providing a full 50 per cent oxygen atmosphere. An impressive suggestion of the danger of sudden downward fluctuation of oxygen concentration was the sudden death of one of my patients about two minutes after removal of the tent, contrary to instructions, for changing the tanks."

My experience has permitted me to treat only one case of coronary occlusion. This patient remained under the tent for seven days and made a satisfactory recovery.

Haines and Boothby[7] state that hypothyroidism and anoxemia seems to develop easily because of increased oxygen consumption which is supported by experimental evidence. This points out that pulmonary edema is a common cause of anoxemia and states that factors predisposing this condition in goiters, particularly if hypothyroidism is present, is due to such factors as: 1. Respiratory restriction causing an increase in inspiratory effort. 2. Respiratory obstruction as a result of tracheal pressure. 3. The old theory of Welch "A disproportion between the working power of the right and left ventricle is of such character that the resistance remains the same. The left heart is unable to expel in a unit of time the same quantity of blood as the right heart. 4. The fourth factor is a varying susceptibility of different persons to an oxygen deficiency. A concrete example of the latter is mountain sickness.

Landis[8] has shown that oxygen deficiency increases the permeability of the capillary walls, not only for fluid but also for protein with a reduction of effective collidol asmotic pressure of plasma.

Haines and Boothby conclude that the therapeutic administration of oxygen is helpful in such cases as postoperative pulmonary edema, bronchopneumonia and respiratory obstruction.

While I have not had the opportunity to note the effect of oxygen therapy in respiratory restriction due to pressure from goiter producing an increase in the inspiratory effort, Hart and I[9] in reporting the oxygen tent in Postbronchoscopic Care of Children pointed out that stridor acts as a pernicious cycle to perpetuate and increase the edema resulting from the irritant action of foreign bodies and the trauma of operative intervention. Other features that the hypothyroid cases should respond to pre or post operative treatment with oxygen is a maintenance of the patient in a low and uniform temperature which should lower the body temperature, decrease the basal metabolism[4] and support the general circulation.

Pulmonary atelectasis commands the attention of the surgical profession as important potential complication in surgical procedures.

George S. Bergh[10] points out that success of hypoventilation with carbon dioxide depends on the transient effects; hyperpnea opening up collapsed areas in the lung just as deep breathing opens up areas of "Physiological Atelectasis," the violent movement of tracheobroncheal tree tending to loosen adherent secretions. He advises the use of oxygen and

CO_2 at frequent intervals. In most cases it is sufficient to hypoventilate the patient three to four times daily whereas in some instances CO_2 should be administered more frequently. He cites for example the desirable cases as those: 1. Patients with painful incision breathe less deeply than those who have less pain. Patients with bronchorrhea, debilitated patients for the most part are not necessary to continue hypoventilation after the third day, but the length of time should be determined by the amount of secretion and character of respiration. In unfavorable cases the period of hypoventilation continued even through convalescence. At the University of Minnesota Hospital the above quoted author uses a mixture of 10% CO_2 and 90% O_2 and the mixture is given for periods of approximately three minutes at the time.

The question of the expense of the use of gases always arises and a reasonably satisfactory method has been advised for hypoventilating the lungs by permitting the patient to rebreathe in an ordinary paper bag held over the face. This method was reported within the past 18 months, but at present I do not remember the source of this report, but it has proven satisfactory both as a therapeutic and economic measure.

Time does not permit me to go further into the various phases of oxygen therapy so I will confine my concluding remarks as to cases with whom I have had personal experience.

My first case was treated in Charlotte, December 23-25, 1930, and since this beginning I have concluded my 65th case. I have used four different types of equipment. The first being the tent manufactured by Foreger Company, Inc., which is the simple tent into which is introduced oxygen. This tent does not permit a control of temperature or humidity. The second type tent is the Henderson-Haggard tent which is based on Thermo-Siphon drainage induction technique. This tent is adaptable for the use of oxygen and carbogen and has the advantages of maintaining a very low humidity by the employment of dry ice, permitting the condensation of the moisture circulating from the tent around the cylinder to condense on the outer surface as sublimation of the dry ice transpires. The disadvantage of this tent is the cost of operation because it will consume from 60 to 70 lbs. of dry ice every 24 hours, depending of course upon the outside temperature, the size and the body temperature of the patient under the tent. The cost of this ice delivered Charlotte is 10 cents a pound, which increases the cost of operating $6.00 or $7.00 per day. The third tent has proven very satisfactory, particularly for infants, children and adults of medium stature. This is the Roth-Barach tent. This tent is of motor driven type and has cylinders for ice and soda lime through which the oxinated air circulates from the tent. The fourth is the most recent addition to my equipment—the Barach Thurston Solarium tent. This tent is similar in many respects to the one above described, however, it has a larger canopy which diminishes the patient's sense of claustophobia. The important factors to control in operating an oxygen tent are the

oxygen tension, which should be maintained between 40 to 50% instead of the normal 20 or 21% as is found in the air whether at sea level or in high mountain altitudes. It has been found that less than 30% oxygen tension affords little or no therapeutic value. It has been shown by Rosenbluth and Black[11] that a flow of 8 liters per minute will maintain the tension of between 40 to 50% oxygen without excessive increase of CO_2 and that even CO_2 increased to 4% shows no deleterious effect. One, however, at least should make frequent determination of oxygen tension.

The United States Pharmacopeia requires an oxygen content of 98%, but practically all oxygen on the market from standard producers considerably exceeds this and the ordinary commercial oxygen can be secured from commercial companies is usually 99 5/10 per cent pure with variations of not more than 1/10 of one per cent from this figure.

The relative humidity should maintain below 50% regardless of inside or outside relative humidity or temperature, taking into consideration the fact that the patient in the tent may add as much as 100 cc. of water to the atmosphere every day. This factor is one of the most difficult to control in our climate, particularly with larger patients who are febrile and clammy. A tent should have capacity of at least 8 c. feet and the standard calls for servicing the tent in such a manner as to provide for at least 15 atmospheric changes an hour. That is, a complete change for every four minutes. The temperature under the tent should be kept at 70° F. or below. Of the 65 cases that I have treated only about twelve in number would strictly be considered surgical cases. Of this number six have been reported by Hart and myself in the article that I referred to above. Of this number five made complete recovery. Since this article we have added three cases. Of this number only one responded to oxygen, the other two, it was necessary to do tracheotomy because of mechanical obstruction, which prevented them from responding to oxygen therapy. However, we are happy to report that from this series there were no fatalities. The other cases have been postoperative pneumonia, with recovery, chest injuries, fractured ribs and danger to pleura and lungs. Recovery after five days under the tent. The second case of bronchopneumonia is an elderly adult who was seen in consultation with Drs. McKay and McKay who developed bronchopneumonia while being prepared for urologic surgery. The last case was one in which definite cellulitis of the neck following dental surgery. This case developed bilateral cavernous sinus thrombosis and died following erosion of one of the large vessels of the neck, massive hemorrhage occurring. Oxygen therapy gave definite indication as a support measure by a definite lowering of the pulse and respiratory rate.

While the mortality rate in the surgical cases has been reasonably low I have not established such a record from the standpoint of medical cases. I have been particularly disappointed in the high mortality rate that developed in my last six cases of influenza pneumonia, as I have had no

recoveries and two of this number dying in less than 24 hours after the tent was placed on them. I feel that in the 2½ years that I have been interested in this type therapy that I have gained knowledge and I hope that I have rendered my colleagues and my patients a service. While it has been proven that some of the claims of Beddeos are being justified, one, however, should not be too enthusiastic in accepting new theories or claims, but on the other hand there are certain conditions in which delay in oxygen therapy certainly leads to a definitely bad prognosis.

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DISCUSSION

Dr. R. B. McKnight, Charlotte: So frequently in the discussion of a paper, especially one presented to a surgical section, the discussion resolves itself into: "I have done one of those operations too; so any of you boys living in my territory can refer such a patient to me. Dr. X is not the only one who can do the job!" There will certainly be no such discussion of Dr. Davis' splendid paper, for he probably knows more about oxygen therapy than the rest of us present.

He is to be congratulated on his courage in purchasing four oxygen tents and a truck for their conveyance, during these times of economic distress. He has rendered a great service not only to the local profession in Mecklenburg County, but also to the profession and public in a radius of many miles of Charlotte.

It has been reported that the mortality in pneumonia has been lowered almost 10 per cent through the use of oxygen supplied by means of a tent. Since this is true, is it not obvious that this form of therapy must be

of distinct advantage in certain, properly selected, postoperative complications?

There are certain clear cut indications for the postoperative use of an oxygen tent; and these indications are found in those patients suffering respiratory or cardiac embarrassment with hypoventilation of the lungs and a resulting anoxemia. Judd has found oxygen therapy of special value after operations in the upper abdomen where there has been some irritation to the diaphragm and consequently interference with adequate respiratory excursions. In postoperative pneumonia, cardiac collapse, and atelectasis, the indications for its use may be clear.

Overholt has shown that too tight strapping does not lead to hypoventilation but it is due rather to an improper Fowler position in which the patient is "jack-knifed," so to speak, and the lungs compressed.

I do not mean to imply that all patients with postoperative respiratory embarrassment are subjects for oxygen therapy. Proper position in bed so as to permit unrestricted breathing, breathing to and fro into a paper bag so that the patient's own CO_2 acts as an increased stimulant to the respiratory center, induced coughing or bronchoscopic treatment in atelectasis, the use of steam inhalations and the administration of certain respiratory and circulatory stimulants may bring about normal or sufficient pulmonary ventilation. I think these measures should be used before employing an oxygen tent; however, the patient should not be allowed to become moribund before calling for the oxygen therapist.

Perhaps the only real objection to the use of an oxygen tent is the cost to the patient. In order for the doctor to meet the actual expense of operating such a tent he must receive from fifteen to twenty dollars a day for its use. The cost of oxygen will amount to eight or ten dollars per 24 hours, and the dry ice will cost about the same. This does not include a reasonable return on an investment nor remuneration for the doctor's opinion and time. Consequently it is necessary to collect at least twenty-five dollars a day to meet operating costs. There are few people today who can afford it; the doctor cannot be expected to defray this expense himself; as a result many who need the services of Dr. Davis and his equipment, cannot get it.

Dr. Davis is skilled in the knowledge and use of oxygen therapy. I have seen him secure phenomenal results. With the exception of the cost, over which he has no control, it is perhaps the most valuable adjunct to the management of and the reduction in mortality of certain postoperative conditions that we have at our disposal today.

Chairman Newman: The next paper is supposed to be by Dr. Julian A. Moore, of Asheville. He wired his regrets at being unavoidably detained.

. . . His paper was read by title . . .

CLOSED INTRA PLEURAL PNEUMOLYSIS AS AN ADJUNCT TO ARTIFICIAL PNEUMOTHORAX THERAPY OF PULMONARY TUBERCULOSIS

By Julian A. Moore, M.D., M.M.S., F.A.C.S.

(Read by title)

While artificial pneumothorax is the most valuable single method of collapse therapy of pulmonary tuberculosis, it fails in a large number of patients. Matson[1] claims that in twenty per cent of those patients in whom artificial pneumothorax is attempted it cannot be induced because there is no free pleural space; in forty per cent a satisfactory collapse cannot be obtained on account of intra pleural adhesions; and in only forty per cent can a satisfactory and successful collapse be obtained.

A complete collapse is not necessarily essential for successful cure of the disease, as not infrequently a brilliant clinical success follows a partial pneumothorax. However, it has been shown that, as a general rule, clinical success depends upon the degree of collapse of the diseased areas obtained by pneumothorax. When adhesions are present they are usually over cavities and the diseased areas of the lung, and too often they prevent the collapse of the very part of the lung it is essential to collapse.

In 1927 Rist[2] reported the results of 759 cases of chronic unilateral tuberculosis treated by artificial pneumothorax from 1912 to 1926. Of these, 378 cases, or fifty-two per cent, were successful and 372 cases, or forty-eight per cent, were unsuccessful. In 1929, Matson[3] reported the results of 850 cases of tuberculosis treated by artificial pneumothorax from 1911 to 1925 as follows:

Character of pneumothorax	*Clinically well*	*Arrested*	*Dead*
Satisfactory collapse, adhesions not preventing closure of cavities or adequate rest of the lung	48%	20%	21%
Partial collapse, adhesions preventing satisfactory closure of cavities or adequate rest of the lung	13%	13%	50%

From these statistics it is obvious that unless artificial pneumothorax produces a closure of tuberculosis cavities and adequate rest of the lung, a complete arrest of the disease is not very likely. Most of these patients with partial collapse of their lung will ultimately die of tuberculosis unless something is done to improve the artificial pneumothorax, or it is abandoned and followed by some other means of collapse therapy.

There are four ways of improving an artificial pneumothorax, namely:

(1) By pushing the pneumothorax to high positive pressures in order to stretch adhesions. This method is seldom successful and increases the danger of perforation of the lung and its disastrous sequellae.

(2) By supplementing artificial pneumothorax with phrenic neurectomy. In a considerable number of cases, adhesions that prevent satisfactory collapse of the lung are relaxed sufficiently by paralysis of the

diaphragm to permit success of the pneumothorax. My results from phrenic neurectomy done as a supplement to artificial pneumothorax at the North Carolina State Sanatorium has been very gratifying.

(3) By intra pleural pneumolysis by the open method. I have had no personal experience with this operation, but in a recent survey of the world's literature I[4] have found a total of 52 cases reported. There was an incidence of empyema of 28.8% and a mortality of 19.2%. Obviously the risk of this operation is too great to justify it.

(4) By closed intrapleural pneumolysis which is the particular method I wish to discuss.

In 1910 Jacobaeus[5] invented the thoracoscope. In 1913 he attempted and succeeded in dividing pleural adhesions in a pneumothorax cavity. His original thoracoscope was rather imperfect and the operation at first did not gain much favor. He has since improved it, and several men have devised thoracoscopes, including Unverricht, who has made the best instrument for this purpose.

The Unverricht thoracoscope consists of a long cylinder 15 mm. in diameter and contains a lens system that gives a right angled field of vision. It carries a light at the tip of the instrument. It is introduced through a cannula previously inserted between the ribs. The adhesions are divided by means of a cautery inserted through a separate cannula, and kept in view by means of the thoracoscope.

The operation has been modified in detail by many operators. In this country Matson[1] modified the operation by dividing the adhesions with a high frequency current. He has devised very ingenious and satisfactory electrodes for use instead of a cautery. I think unquestionably the electro surgical method is superior to the cautery method because (1) hemorrhage can be more easily and accurately controlled; (2) the electro surgical method does not produce smoke to obscure the field as does the cautery, and (3) the shaft of the electrode does not become heated as does the cautery, and there is less danger of injuring the lung from a heated shaft resting on it.

The technic seems simple, but the operation actually is very difficult. A refill should be given a day or two before operation in order to have as much room to work in as possible. The operator should make a thorough study of the stereoscopic films beforehand, so that he knows as far as possible the location of the important adhesions. The patient should lie on a small pillow on the sound side, and should be made as comfortable as possible. The skin is carefully prepared and the surgeon should exercise all aseptic precautions. Local anesthesia is used, care being taken to anesthetize skin and pleura. There should be no pain, but since the procedure may last two hours, the areas have to be reanesthetized.

The point of introduction of the trocar and cannula should have been predetermined from the study of stereoscopic films. A point is selected that the operator thinks will give him the best view of the main adhesions.

More frequently the point elected will be the sixth or seventh interspace in the scapular line. In this case the arm will have to be pulled up and forward to pull the scapula away. Not infrequently one will find that the third or fourth interspace anteriorly is the optimum point.

A small puncture wound is made in the skin and the trocar and cannula carefully inserted, the trocar is withdrawn, a hiss of air is heard, and one knows he has gone through the pleura. The thoracoscope is inserted and the light turned on. At this point the room must be darkened.

First a careful inspection of the whole chest cavity must be made. The adhesions should be carefully studied as to their location, size, vascularity, and operability. One must carefully orient himself before proceeding. Then with the aid of the thoracoscope, a point is selected for introduction of the cannula for the electrode. It is inserted in the same way as the first cannula. The point for insertion will be in mid or anterior axillary line or mid clavicular line. One tries to select a point from which he thinks he can most readily reach the point of adhesion.

The electrode or cautery must be under view all the time it is being manipulated. The trick of the operation is to place the electrode on the adhesion. It is very difficult to do, as one is looking at right angles to what he is trying to do.

Adhesions as a rule are painless except at their parietal attachment. They should be divided as close to their costal attachments as they can be. Small adhesions are divided first and larger ones last, because after release of a large adhesion the lung may suddenly collapse and tear small ones. If one uses the electro surgical method, he can alternately use the cutting and coagulating currents and prevent hemorrhage as a rule. If one uses the cautery, he should never use the cautery white hot, but always a dull red.

After all adhesions have been divided and before the instruments are removed, I usually insert 20 cc. of a warm hexylresorcinol solution as an added precaution against infection. The wounds may be sutured or not. A tight compression bandage is applied.

After operation the patient should be kept as quiet as possible and sedatives should be given to alleviate cough, as cough increases the subcutaneous emphysema. A pneumothorax refill should be given within three days. Post operative effusion should be aspirated as indicated.

The operation is indicated in any case of pneumothorax which after a period of 3-6 months has not produced a satisfactory collapse on account of string, cord or band like adhesions. It is contra indicated in cases of active febrile tuberculous effusion, and it should not be attempted unless there is reasonable assurance that a successful pneumothorax will benefit the patient.

While stereoscopic X-ray films and fleuroscopic examination will give considerable help in selecting cases for operation and in locating adhesions, thoracoscopic examination is the only means of definitely determining

the operability of adhesions. The X-ray often fails to show adhesions present and often misleads the operator as to their character. It is the rule to find more adhesions present than shown by the X-ray.

All adhesions cannot be safely divided. Surface adhesions should not even be considered. Many cord and bandlike adhesions contain prolongation of cavities and lung tissue and one must be sure that the adhesion does not contain a prolongation of a cavity before he attempts their division. If he cannot be sure, the operation should be abandoned. Roughly speaking, if an adhesion is not over 2 cm. long, it should not be divided. String-like adhesions can be safely divided, but usually they are not important. Gloyne[6] has shown that many adhesions contain tubercles and at times these can be seen. They do not constitute a contra-indication, but according to Matson[1], their presence indicates an increased danger of tuberculous effusion developing after the operation.

The location of the adhesion is of importance. The majority of adhesions are apical or lateral. The lateral adhesions are usually the easiest and safest to divide as they are often string or cord like. The apical adhesions are usually shorter and thicker. It is not always necessary to divide them. Great care should be used when attempting to divide them, as the subclavian artery and vein are in close proximity and a little slip may be disastrous. Mediastinal adhesions, as a rule, are not important. Diaphragmatic adhesions are technically hard to divide, because of the motion of the diaphragm. However, it will seldom be necessary to attempt their division as phrenic neurectomy will often obviate the necessity of pneumolysis.

The complications of the operation are not many. The operations are well borne. Most patients have an elevated temperature for several days, and a varying degree of subcutaneous emphysema, which does no harm. At least half of the patients develop a varying amount of serous effusion, which may call for aspiration, and which usually disappears without doing harm.

About ten per cent will develop a persistent effusion, usually tuberculous in nature. In a small percentage it will develop into a true tuberculous empyema. However, tuberculous empyema is no more frequent after pneumolysis than it is during the course of artificial pneumothorax.

The real dangers of the operation are hemorrhage and mixed infections. Quite a few serious hemorrhages and at least three fatal hemorrhages have been reported. The danger of hemorrhage has been greatly reduced by the introduction of electro surgery.

Infection is serious and may be exogenous or endogenous in origin. The former can only be avoided by a rigorous technic. The latter results from performation of the lung and may occur immediately or as late as several weeks after the operation. It is a serious and often fatal complication. If such an accident does not prove fatal, it certainly leaves the patient in far worse condition than before. The only way to avoid this

complication is by conservatism and extreme care in operating. Maurer[7] claims that no adhesion should be divided, but that all of them should be enucleated from their costal attachments. He is the only operator of large experience who has avoided this complication.

The results of the operation are excellent. I[4] have collected 1835 cases from the literature, to which I have added 15 cases of my own. The results as reported are as follows:

Number of Cases	*Clinically successful*	*Clinical failure*	*Cases made worse by operation*	*Cases died from operation*
1850	1397	453	84	19
Percentage	75.5%	24.5%	4.5%	1.08%

These results should convince any skeptic of the value of the operation and when compared with the results of open pneumolysis leaves no argument as to which is the safer, more effective method of dividing adhesions.

In conclusion I wish to emphasize the following things. First, artificial pneumothorax that does not produce a satisfactory collapse of a diseased lung will not cure the patient, and it is unfair to the patient to submit him to an indefinite regime without much hope of cure. Secondly, a large percentage of the cases of partial collapse can be definitely improved by the operation of pneumolysis. And lastly, the operation of pneumolysis in experienced hands is a comparatively safe procedure. It is not an operation to be undertaken by any one who has had no fundamental training in either thoracic surgery or endoscopic surgery. The operation requires more patience and skill than any other operation in surgery with which I am familiar.

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MESENTERIC ADENITIS

By W. B. McCutcheon, M.D., F.A.C.S.

Infection of the mesenteric lymph nodes occurs frequently in tuberculous infections of the intestinal tract. Simpler forms of acute and chronic infection also occur in the lymphatics of the terminal ilium and about the ileo-cecal junction. The factors which predispose to infection of the lymph

nodes in this location are: fecal stasis, inflammatory processes in this vicinity such as infection of the appendix, or infections of Peyer's patches.

From the standpoint of diagnosis, etiology and treatment, the association of appendicitis with lymphatic adenitis is of utmost importance and is a condition that is frequently met with when one is familiar with it. Wilensky and Hahn in Annals of Surgery—1926, state that marked enlargement of the mesenteric lymph nodes is rarely found in ordinary acute appendicitis. They stress the entry of the infection through Peyer's patches and compare it to a cervical adenitis with infection entering through the tonsil with no mode of exit.

There is great danger in removing the glands for pathological and bacteriological studies due to the fact that the infection may be disseminated and a generalized peritonitis result. Many of the glands contain streptococci according to Dr. Speese of Philadelphia. It is for this reason that a more thorough study of the etiology has not been made. Glands were removed in two cases where they were located in the mesentery of the appendix and removal could not be avoided. Microscopically these showed simple adenitis. Unfortunately no culture was obtained in either case.

Mesenteric adenitis is a disease that is frequently encountered, presents a group of symptoms which are characteristic and should make it a clinical entity, and when one is thoroughly familiar with the condition it should be diagnosed or strongly suspected. The disease usually occurs in young children although it may occur in young adults. Dr. Speese reported fifty-seven cases ranging in age from twenty months to thirty-five years. In the majority of instances the cases were under twelve years of age. During the past three years, Dr. Sweaney and I have had thirty-seven cases, the oldest of which was fourteen years, the youngest thirty months. Thirty-four of these patients were operated on. Three cases are under observation at the present time. Most of them were admitted to the hospital with a diagnosis of chronic, sub-acute, or acute appendicitis. Fourteen of the cases were diagnosed as adenitis preoperatively, although the appendix was not entirely excluded in the majority of instances. Recently, as we have become more familiar with the condition, the diagnosis has become more frequent and positive. Thirteen cases were acute or presented most all of the symptoms of acute appendicitis except for a slight difference in history, higher temperature than in appendicitis, less rigidity, and the leucocyte count was not as high as one would expect from the other symptoms. There were seven sub-acute and fourteen chronic cases in this series. Four of the acute cases had definite acute appendicitis associated with the adenitis. In the acute cases or acute exacerbations of the chronic cases, the first and most common symptom is abdominal pain, severe and colicky, which is generalized or in the epigastrium and becomes localized in the lower right quadrant in about seventy-five per cent of the cases. Nausea and vomiting were usually present, either

constipation or diarrhea may be present. The sudden onset of pain shifting to the right lower quadrant, associated with nausea and vomiting, rise in temperature, tenderness and sometimes rigidity usually results in the diagnosis of acute appendicitis. When sub-acute or chronic symptoms are present such as pain, colicky in nature, coming on during or just after eating, with remissions and exacerbations, the diagnosis of mesenteric adenitis should be made in a large proportion of cases.

COMPARISON OF APPENDICITIS AND MESENTERIC ADENITIS

ACUTE APPENDICITIS

1. Pain, colicky, beginning in epigastrium, generalized, and followed by soreness in right lower quadrant.
2. Nausa and vomiting follows pain.
3. More definite right lower quadrant tenderness and rigidity.
4. Rise in pulse and temperature not so marked.
5. Leucocyte count higher than in adenitis, usually. Differential shows higher polymorphonuclear count.
6. Rapid convalescence.

CHRONIC APPENDICITIS

1. Pain and soreness in right side of abdomen.
2. Indigestion and constipation.
3. Some rigidity at times.
4. Elimination of other causes.

ACUTE MESENTERIC ADENITIS

1. Pain, colicky, and generalized.
2. Localized in lower right quadrant.
3. Nausea and vomiting, frequently.
4. Constipation or diarrhea.
5. Temperature and pulse elevated more than in uncomplicated forms of appendicitis.
6. Presence of mass or palpable gland.
7. Frequent in undernourished children.
8. Slow convalescence, temperature persists.

CHRONIC MESENTERIC ADENITIS

1. Undernourished child.
2. Recurrent attacks of abdominal pain and discomfort.
3. Loss of appetite, *stomachache after eating a small quantity of food while at the table.*
4. Tenderness and palpable mass of glands in the lower right quadrant.
5. Slow convalescence.

The following cases are reported as fairly typical examples of an acute and a chronic case:

Acute Case: G. G., a doctor's son, age thirty months, was admitted to Watts Hospital at 3:30 P. M. Sunday afternoon, June 14, 1931, complaining of severe pain in the abdomen with nausea and vomiting. The onset of this illness was Saturday night when the patient was awakened with stomach ache and promptly vomited several times. The pain, nausea and vomiting had persisted up to the time of admission except for a few hour periods.

The past history was important because the child had had frequent attacks of abdominal pain which was transient since he was one year of age. He had never eaten well and always complained of abdominal pain or discomfort just after eating. Chronic constipation was the rule. There was no history of any previous acute attacks or any severe illness.

On admission, the child appeared ill, face flushed, T. P. R. 102, 120, 22, head, neck, throat, and chest were negative. The abdomen was slightly distended, rigidity which was not marked, and tenderness over the appendiceal region. A small mass was made out in the lower right quadrant. Leucocyte count was 13,800, urinalysis negative. Enemas were effectual. A diagnosis of acute mesenteric adenitis or acute appendicitis was made.

After a short period of observation the patient was operated on under avertin anesthesia through a McBurney incision. The abdomen contained a large quantity of free colorless fluid, the appendix was about normal size, red and showed vascular engorgement. The glands in the meso-appendix and in the ileocecal region were markedly enlarged which accounted for the presence of a mass. The appendix was removed in the usual way.

During the first five days, the temperature ranged from 99 to 103.6. After this time, convalescence was normal except that it was several weeks before he had a very good appetite. At the present time he is entirely well and robust.

Chronic Case: K. E., a girl, age 9, who was admitted to Watts Hospital March 10, 1933. She was an undernourished patient who had complained of indigestion and abdominal discomfort for about four years. The pain came on after eating, and especially after eating a normal meal. I had seen her in consultation at intervals for a period of eighteen months. Each time she had nausea, abdominal pain, slight soreness in right lower quadrant, tenderness but no rigidity. All other examinations were negative including rectal examination. From the history and examinations, a diagnosis of mesenteric adenitis was made.

Operation was performed the next morning through a McBurney incision under avertin anesthesia. The appendix was found to be adherent, kinked, and showed evidence of chronic inflammation macroscopically and microscopically. The glands were enlarged to the size of small marbles in the mesentery of the appendix and about the ileocecal junction. There was clear fluid in the abdomen. Appendectomy was performed in the usual manner and the abdomen closed.

This patient had a most satisfactory convalescence and has gained three and a half pounds in one month.

Operation is desirable in practically all of the cases, according to Drs. Speese and Ravdin, because appendicitis cannot be ruled out in all the acute cases and in the chronic cases a possible source of infection is removed, obstructive adhesions released, and if a tuberculous infection is present the laparotomy seems to have a beneficial effect, and because

the after treatment and management of the case is influenced by the operative findings.

The convalescence of these patients is slow. The acute cases have considerable temperature for a few days or from one to two weeks, depending upon the rapidity with which the lymphadenitis subsides. The end results in all of our cases have been good. No tuberculosis was found in this series. When it is strongly suspected or proved, the usual outdoor treatment with appropriate diet and hygienic measures should be followed.

SUMMARY

1. In thirty-four cases, tuberculosis was not found or suspected at the time of operation.

2. Appendicitis and simple lymphadenitis are frequently associated.

3. The glands should not be removed for pathological or bacteriological study because of the possibility of a streptococcic peritonitis.

4. The disease is of frequent occurrence in children.

5. The symptoms are characteristic and the condition should be diagnosed in most instances.

6. Operation with appendectomy is the proper method of treatment because the appendix cannot be eliminated, the condition is cleared up, and the patients are cured.

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DISCUSSION

Dr. A. H. London (Durham): Mr. Chairman: The introduction of such a subject is not without danger because the profession has finally reached the point of becoming appendicitis conscious. It is to be hoped that the introduction of a new diagnos's for acute abdominal pain will not lead to a return of ruptured appendices.

The etiology of mesenteric adenitis is obscure. Dr. McCutcheon has suggested the possibility of infection in Pyers patches. This may be the source. On the other hand there is quite a close association between upper respiratory tract infection and mesenteric adenitis. The chronic cases of adenitis do frequently flare up during the course of an acute upper respiratory infection also the acute cases are not infrequently preceded by or accompany acute upper respiratory infection.

In the acute cases of mesenteric adenitis the signs and symptoms are not definite enough to completely rule out the possibility of acute appendi-

citis and it is well in all these cases to operate and remove the appendix. There is one point in the diagnosis which may be worth while; they present symptoms of acute appendicitis "that don't ring true." In the chronic cases you have a history of repeated upper respiratory infection and of repeated attacks of abdominal pain and of pain at mealtime. The majority of these cases suffer from a spastic type of constipation. I have done gastro intestinal X-ray study on some of these children and found pylorospasm and a spastic colon. In some of these chronic cases the glands can be felt through the abdominal walls. In the majority of these, the glands can be felt by rectal examination. If in doing the rectal examination you only attempt palpation in the region of the appendix the glands will not be found. If however the examining finger is passed over the anterior surface of the sacrum you will frequently find enlargement of the anterior sacral group.

As to the treatment: In the acute cases appendectomy is the proper procedure because the symptoms are not clear enough to eliminate appendicitis, there is always a possibility of a chronic appendix flaring up coincident with the acute adenitis, then too, these cases recover following appendectomy. It is not known whether the recovery is the result of the appendectomy or the result of pneumoperitoneum. In the chronic cases I do not feel that operations should be resorted to immediately. I feel that any upper respiratory infection should be cleared up first with especial emphasis on sinus infection, next the administration of atropine fifteen minutes before meal will in most instances eliminate the mealtime pain thereby allowing an increased food intake; at the same time mineral oil should be administered each night to take care of the constipation. These measures in conjunction with cod liver oil, fresh air, rest periods and regular hours will often result in recovery without operation. There is one important point to be emphasized in those cases which are operated. The surgeon usually sees these cases for the first week or two post-operatively and as Dr. McCutcheon has pointed out, the majority of them recover. However, there are a certain number who return to the medical man with the pre-operative symptoms still present and these present a difficult problem. I've had two of these children to continue their symptoms for a period of five months but I am happy to say they have eventually recovered. Speese has pointed out that the post-operative care of these patients should be similar to cases of active tuberculosis.

When mesenteric adenitis is suspected it is well to warn the parents before the operation that the convalescence will be more stormy than that of simple acute appendicitis and that it may be months before complete recovery.

Dr. W. L. Grimes (Winston-Salem): There is one point I want to bring out in connection with this interesting paper, and that is—sometimes with these patients, particularly in the acute condition, the pain is paroxysmal in character, as is illustrated by a patient that I had back in the

winter. This boy, about eleven years old, had had previously a throat infection, and was down at the throat doctor's office one Monday afternoon, and had this paroxysmal pain in his abdomen, not particularly localized. The pain lasted for two or three hours and subsided. He went for forty-eight hours without further discomfort, and then the pain returned and lasted for a while. Then he had right much pain on Saturday, but was finally relieved; and on Sunday he had much more pain that was not relieved.

I saw him about noon, or a little after, and at that time when I went in the room he was lying there perfectly comfortable. He just looked perfectly happy. The temperature wasn't very high. But all at once he just doubled up with this terrible pain in his abdomen, which lasted a few moments, and then subsided.

His blood count was rather interesting. The total count wasn't very high, but the differential count showed a preponderance of the mononuclear cells, and a mass could be felt in the right lower quadrant, which made us think of the possibility of an intussusception. He was taken to the hospital and another blood count was done about three or four hours after this first, and the picture had entirely changed. The total count was higher, and the differential count showed a high preponderance of the polynuclear cells. At that time there was more localization of the tenderness. You could still feel the mass, but the tenderness was localized in the right lower quadrant in the region of his appendix. We didn't think of this glandular enlargement at the time, but we thought probably the boy had either an intussusception or appendicitis.

We opened him up and found he had an appendix that was just a little bit red. The appendix was removed. He had glands very much enlarged, extending all the way up as high as one could reach through a McBurney incision, and the glands looked edematous.

The appendix on microscopical examination was very interesting, due to the fact that there were a great many very small abscesses in the appendix wall, with an infiltration of polynuclear cells extending throughout the wall of the appendix, and even in that part of the mesentary which was removed with the appendix.

Dr. H. A. Coddington (Wilmington): This case is so different from the cases that have been reported, I thought it might be of some service to report a boy about ten years old, who was of a very feeble, rundown, anemic type, who came into the hospital two weeks after he had his first symptoms. His symptoms were pain, nausea, and the usual symptoms reported, except for the typical paroxysms of pain that have been described in one particular case here. This boy had that particular type of pain. He would be drawn double by the pain for, say, a couple of minutes, and then it would pass on, and he would be perfectly comfortable.

At that time the blood count was about 13,000 white cells, with a very slight increase in the polys. He had an elevation of about 101

temperature, a little higher than found in the usual appendicitis case, and pulse about 106. An unusual finding on examination was a mass just to the left side and above the umbillicus. There was no tenderness whatever near McBurney's point, but all of this pain and tenderness was localized on the left side, just to the left of the spine. There was a mass there that felt like a half grapefruit.

I made a right rectus incision, and found a conglomerate mass of glands, irregular in outline, and nothing else abnormal. The appendix was only slightly inflamed. On removal it showed just a moderate inflammatory condition. Also, we found the stools full of hookworm, and that is the reason I want to bring this point up.

After about a week of uncomplicated convalescence, the boy became well enough for us to give him the hookworm treatment, and then he showed very rapid improvement. I saw him about two months after he left the hospital, and the mass had completely disappeared. Did the operation do it, or the treatment for hookworm?

Chairman Newman: If there is no further discussion of Dr. McCutcheon's paper, I will ask Dr. McCutcheon to close it.

Dr. A. D. Ownbey (Greensboro): I think every surgeon in this room sees plenty of these cases. The only difference between what Dr. McCutcheon knows about them and the other fellow, is that he is looking for them and finds them. In these cases where the surgeon makes a diagnosis and proceeds to make an incision and gouge around in the abdomen and removes the appendix, sews up the abdomen and sends the child back, the sad commentary is, he did not find the trouble. He diagnosed the case as appendicitis, operated as appendicitis, and sent it back, and it did not recover. Dr. McCutcheon is looking for the thing, recognizes the thing, and finds it.

It is very important, I think, that the diagnosis should be made because of the post-operative care. If you let it go as appendicitis, the child will not get well immediately, and there will be trouble following.

It so happens, just why I don't know, but an operation does cure them ordinarily. We had a number of cases in the hospital in which I was working, and practically all of them got just as well as if the operation had been for appendicitis. A few of them would carry along, not doing so well.

As to whether an operation is absolutely essential or not, I don't know. But I do recall a few cases in which we tried them out. I remember a brother and sister. The brother came into the hospital and was diagnosed as appendicitis and was operated on, and a week or so later I saw the sister with the same symptoms and made the same diagnosis, and just kept that child in bed and treated it, and it did just as well. Whether the opening of the abdomen is the thing that cures the case, or whether it is the hospitalization of the case that cures it, I don't know.

I don't recall that the cases we saw had localized pain in the right lower quadrant. As I recall, all the cases we had the pain was generalized and not localized in the lower right quadrant.

The only difference I have with Dr. McCutcheon in his treatment, or so far as the operative procedure is concerned, is his incision. Where there is a question whether it was mesenteric adenitis, I have always made it in right rectus, so there could be good exploration of the abdomen.

As to the removal of the glands that he brought out—at that time there was little written about it. We removed the glands in a number of cases, and we never had the least bit of trouble. Whether things have changed since then, I don't know. Of course, if he has weight of evidence that it is dangerous, I should certainly stop the removal of glands.

Dr. W. B. McCutcheon (Durham): Dr. London brought out a point which I mentioned but did not emphasize. Dr. Grimes also mentioned the same point which is the low polymorphonuclear count or high mononuclear count found in the differential. I think this is very important because as a general rule it is a distinct aid in the diagnosis of this disease.

Dr. Ownbey mentioned several mild cases. I have had a number of cases of mesenteric adenitis which were diagnosed and have not been operated on. The ones that were operated on had sufficient symptoms and pain to be sent into the hospital. They were all sent to the hospital with fairly acute abdominal pain. In seventy-five per cent of the cases I have had—and I think that the literature substantiates this—you do get localized tenderness in the lower right quadrant the same as you do with appendicitis.

The main reason that we have used the McBurney incision largely, was because we have tried to confine the diagnosis to mesenteric adenitis or appendicitis by eliminating all other conditions with a thorough physical examination and examination of the stool for worms. The McBurney incision shortens the patient's stay in the hospital and hastens convalescence. When the diagnosis is very much in question, of course a right rectus or peri-rectus incision should be made.

Dr. Coddington mentioned hookworms. We eliminate worms by a complete study of the patient and as thorough a study of the stools as time will permit, considering the acute illness of the patient. (Applause)

Chairman Newman: The next paper: "The Uses and Abuses of the Rectum"—Dr. R. B. Davis of Greensboro.

USES AND ABUSES OF THE RECTUM

By Dr. R. B. Davis, Greensboro

Stimulation to prepare this paper came after some seven hundred examinations of the rectum, which caused me to realize the importance of this organ. In using the term, rectum, I shall include the anus, so that in the following discussion there will be no separate consideration of the two.

Contrary to popular belief, the rectum is one of the most highly specialized organs, as well as one of the most sensitive organs, in the human body. Its anatomy is important and a short review of it might not be amiss.

The rectum is divided into the movable, upper or ampulla portion and the lower, constricted or fixed portion, in which I include the anus. It is important here to note that the nerve supply is different. The ampulla or upper segment is supplied entirely by the sympathetic system, while the lower or constricted segment is supplied by the sacral plexus. In the ampulla there are three large valves, the importance of which we shall see later. The main muscles of the rectum are the external and internal sphincters and the levator ani.

The normal function of the rectum is the temporary retention and expulsion of fecal bolus and gas. While this sounds very simple it is not so by any means. The reason for this rather complicated mechanism is better understood when one realizes the action and control of the most important muscles. The nerve control of the external sphincter muscle is voluntary in its constricting power but involuntary in its relaxing power. However, its state of rest is neither voluntary nor involuntary but tonic. This muscle is properly called the *cut-off* muscle of the rectum. When it is *voluntarily constricted, defecation cannot occur.*

The internal sphincter is a very unusual muscle, for the reason that its lower fibers are functioning when relaxed and its upper fibers are functioning when constricted. This is possible because of its different nerve supply. The constricting power of its upper fibers is for the purpose of molding the fecal bolus into the proper shape for passage through the lower fibers and through the external sphincter. The relaxation of the lower fibers takes place because of the contraction of the levator ani and the mechanical action of the pressure produced by the feces. These lower fibers ought to be considered as the upper part of the external sphincter since their function is the same.

The levator ani muscle has no evacuating function when relaxed, but a very important one when contracted. The contraction is entirely under the control of the will. This muscle is capable of becoming fatigued when undue straining at stool is practiced. When it contracts it overcomes the rest or tonic contraction of the lower fibers of the internal sphincter and all the fibers of the external sphincter. Following this the lower rectum opens and moves upward toward the bolus of feces. The abdominal muscles by their contraction increase the intra-abdominal pressure, and this helps to force a piston-like action of the sigmoid into the rectum.

The desire to defecate originates from pressure on the three valves of the ampulla. The more the distension and weight upon these, the more urgent is the desire.

What about the abuses? They are many and assorted, but for the most part may be classified as external and internal. The external ones of most importance are: using corncobs or rough newspaper for toilet paper; exposing the rectum to the cold when it is not accustomed to it. (An example of this is known to many who live in steam-heated houses with warm bathrooms, when they go to the country for Christmas holidays); the custom of sitting on hard concrete seats or hard-bottomed chairs for long periods of time. This bruises the external sphincter muscle. Perhaps the worst of all the external abuses is the mutilation from the fingernails in cases of a pruritis. Also I have seen a change in the height of the stool seat prevent a normal stool, thereby producing constipation.

The most important internal causes of abuse are gas distension, hard feces, and foreign substances. Distension of the rectum with gas produces the desire to evacuate in the *same way* a *bolus of feces* does. If this is not relieved, the sensitiveness of the valves and their mucus membrane is obtunded and becomes less noticeable. The same is true of hard and large fecal masses, except that these are more harmful to the mucus membrane, valves, and circulation. After the desire the longer defecation is postponed, the harder and larger the fecal mass grows, due to the ramroding of the piston-like action of the sigmoid. This is the cause of 90 per cent of hemorrhoids. SS enemas when too often repeated and when too much water is held are injurious to the rectum in a similar manner.

The last abuse, which I believe is the most important because it is so common, is the *abnormal* or *non-coördinating* action of the muscles concerned in defecation. Unless coördination between those that contract and those that relax is perfect there is a tendency for the voluntary contracting muscles to force the issue. The abdominal muscles are the ones that most often offend in this respect. They are so large and strong that one feels it is possible to have a stool with their aid alone, and so he tries. However, it should be *thoroughly* understood that the relaxing function of the sphincter and the piston-like action of the sigmoid are of equal importance. One may strain until he develops terrible hemorrhoids but no amount of *force* will obtain the desired effect *without relaxation* of the proper muscles.

Lack of coördination will always develop upon undue hurry, which is all too common in this present day and generation. Since the involuntary relaxing action *must slightly precede* the voluntary contracting action, it is highly important that one should *take his time*. Proof of this may be had by taking a newspaper to stool with you. Other things which prevent coördination are the various reflex disturbances that are brought about by the external abuses mentioned above. If you must hurry, do so going and coming from stool but *never* while there.

DISCUSSION

Dr. J. D. Highsmith (Fayetteville): Gentlemen: No one can doubt the fact that the rectum is one of the most important and highly specialized organs in the body. Also, it is one of the most frequently abused organs in the body, and one which I think is neglected in our Medical Society meetings.

Dr. Davis has given us a comprehensive review of the anatomy and the physiology of the rectum. He has also told us of its physiological action, and its most frequent abuses. One important point, I think, is: that due to the abundant nerve supply in the lower segment of the bowel, pain and discomfort is often out of all proportion to the amount of pathology which we find at operation. In the upper segment of the bowel there is apt to be very little pain or discomfort, even in the presence of grave pathological conditions.

The uses of the rectum are many, and other than the normal physiological uses of which Dr. Davis has spoken, I will mention, first, the treatment of constipation by means of the SS enema.

2. Another use is in proctoclysis. Many and various solutions are employed for this purpose, and I believe that experiments have shown that a one per cent glucose solution is the best one to employ for proctoclysis.

3. Various drugs are given by the rectum—digitalis, bromides, choral, avertin and other drugs.

4. The rectum is employed for the purpose sometimes of examining the female generative organs, and also in the treatment of pathological conditions of the female generative organs.

In the male, the rectum is employed for the purpose of treating the prostate gland, and the rectum is employed for the purpose of colonic irrigation.

Any of these uses may prove to be abuses when improperly carried out. We all have seen cases of pathological lesions in the rectum and around the anus, due to the improper use of the SS enema. Some people will take an enema every day. Enemas are given by orderlies and nurses in their probation period, and I am sure we have lots of trouble resulting from that.

Another abuse is in exerting too much pressure and mauling and banging the tissues in giving prostatic massage. That will cause ulceration, fissures, hemorrhoids. I have seen them result from this pernicious practice.

There are other abuses of the rectum, and the first one that I will mention is the improper injection of hemorrhoids, or the injection of hemorrhoids in the presence of ulceration, fissures and infections. This is a practice that sometimes will result in dire consequences. I know of two cases that have come near bleeding to death from the sloughing that resulted from the improper injection of hemorrhoids. They had to have blood transfusions to bring them back again.

A badly performed hemorrhoid operation, in which the muscle is torn and pulled on while the operation takes place. Also the improper use of packs in operating for fistula, where the muscle is cut improperly and then packed and kept packed. These are abuses which are apt to result in fecal incontinence and lots of times you see rectal strictures following the abuse of the rectum in the performance of hemorrhoidectomies.

Other abuses I will mention are traumas from foreign bodies, purgatives, and sometimes we see gonorrhea of the rectum, resulting from sexual perversion. All of these conditions are apt to result in chronic, prolonged irritation and inflammation of the rectum. And, certainly, this is one of the most important causes, the most frequent causes, in the light of our present knowledge for the development of carcinoma.

I think this subject is a very timely one, and one which we should give our attention to. I know of no class of patients who should have more perfect post-operative care and treatment, and who receive less post-operative care and treatment, than do the rectal cases.

Dr. T. C. Bost (Charlotte): As Dr. Davis was telling us about the uses and abuses and the voluntary and involuntary action of the rectum, I recalled a case which illustrates some if not all of these conditions.

This case was reported several years ago by Dr. Charley Strong of Charlotte. An old gentleman living about twenty miles from Charlotte had a very bad case of prolapsed hemorrhoids. He was unable to reduce the hemorrhoids by ordinary methods, so he took a coca cola bottle and tried to reduce the masses by first inserting the neck of the bottle and finally forcing all of the bottle in and at this crucial moment he had one of these voluntary or involuntary contractions, which Dr. Davis has described to us, and the bottle got away.

After this patient told this story, Dr. Strong made a rectal examination but was unable to palpate the bottle. So he had an X-ray made which showed he bottle well up in the descending colon. The patient was given a general anesthetic and Dr. Strong being an obstetrician as well as a surgeon resorted to a Crede Method above and an application of forceps from below, and abstracted the bottle intact. The patient walked home the next day, a distance of twenty miles, very much improved.

PANCREATIC LITHIASIS

Report of Cases

T. C. Bost, M.D., F.A.C.S., Charlotte, N. C.

It is extremely rare for pancreatic stones to be diagnosed during life. A search of the literature brings to light only 26 cases which have come to operation and in which stones were removed. In the case here cited stones were removed from the head of pancreas at the first operation and ten years later stones were removed from tail of this organ—thus making

two additional operations which brings the total to 28 operations for the removal of pancreatic calculi. Most of the cases have been reported as autopsy findings. Oser collected 70 cases from the literature in 1900. Seeger reviewed and tabulated the 26 operative cases in 1928, and noted that 10 cases had been reported by various authors as coming to autopsy: Kinnicutt, 1902; Kellock, 1902 (mentioned by Moynihan); Phillips, 1904; Müller, 1903; Atkinson and Hirsh, 1907; Opie, two cases, 1910; Pforringer, 1912; Bissell, 1913; Barron, 1920.

The 28 surgical cases and the 79 autopsy cases bring the total to 107. It is probable that other cases have been operated on and not reported. It is also likely that many cases have been overlooked at operation and also at autopsy. However, it would appear that pancreatic calculi are comparatively rare; certainly the subject is not without interest.

In 1920 Barron reported a case of pancreatic stone which illustrated a fact previously brought out by Opie, that obstruction of the pancreatic ducts is accomplished by atrophy of the pancreas, but that the islands of Langerhans remain intact even when the acini disappear completely, and as a result glycosuria does not develop unless an interstitial pancreatitis is superimposed. This finding is said to have led to Banting's discovery of insulin.

Pancreatic calculi resemble salivary calculi and are generally white, or grayish-white, rounded or avoid or irregular, rarely faceted. They are usually brittle and vary in size. They are found in all parts of the gland substance and ducts, but most commonly in the head of the gland and in the duct of Wirsung.

The manner of formation is thought to be very similar to that of stones in the biliary tract, that is, from infection in the ducts and stagnation of pancreatic fluids from obstruction. Stasis, however, is rarer than in the biliary tract, because there is an accessory duct (ductus Santorini). Stagnation alone can not explain the formation of stones; it has been shown that stricture of the pancreatic duct is not uncommon, whereas stone is quite uncommon. The chief chemical constituent of these stones is calcium carbonate. The fact that normal pancreatic secretion contains no calcium carbonate makes it reasonable to assume that an altered secretion precedes stone formation. It is reasonable to conclude that alteration of the pancreatic secretion by infection or pancreatitis, plus stasis, is the cause of stone formation. It has been shown experimentally by Mann and Grorno that the reflux of bile into the pancreatic duct is not a common factor in the etiology of pancreatitis. Infection in the gall-bladder and ducts appears to be the important factor, since it is common knowledge that there is intimate connection between the lymphatics of the gall-bladder and the pancreas, and inflammatory condition of these two organs are not infrequently associated.

The symptoms produced by pancreatic stones are similar to those produced by stones in the biliary tract, and in addition, those of pan-

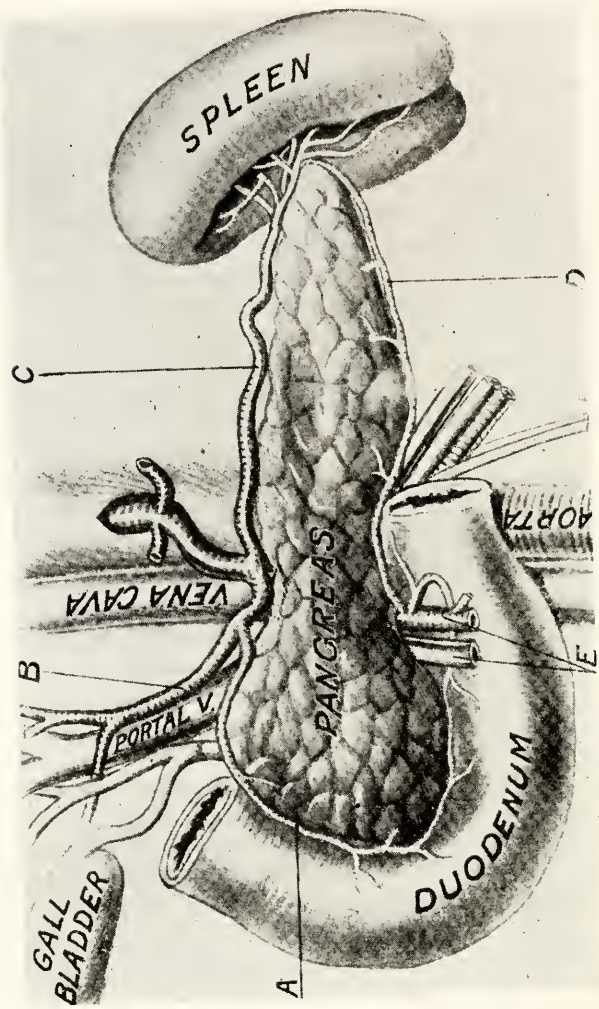

FIG. 1 —ANATOMIC RELATIONS OF THE PANCREAS.

A, Superior pancreatic and duodenal artery; *B*, hepatic artery; *C*, splenic artery; *D*, inferior pancreaticoduodenal artery; *E*, inferior mesenteric vessels.

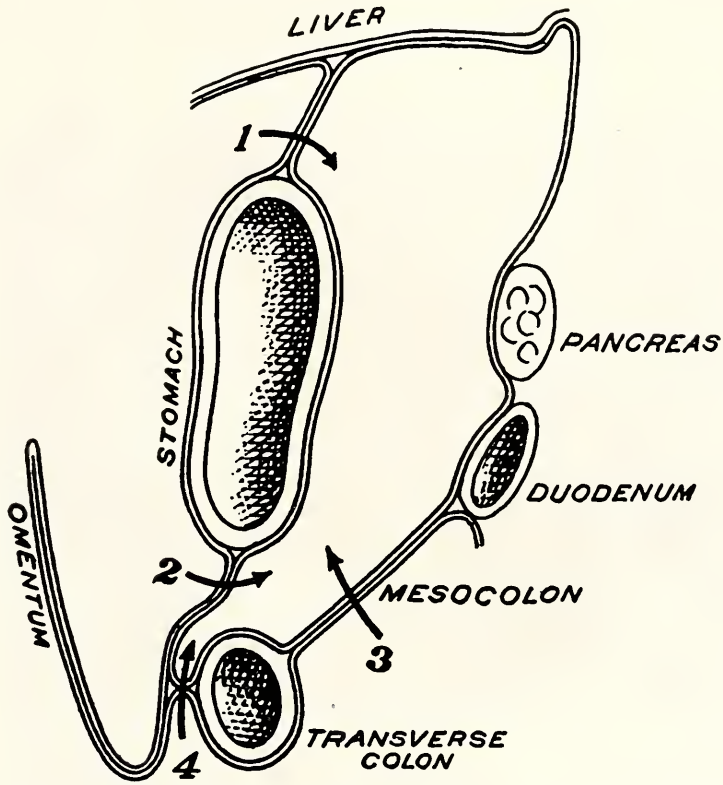

FIG. 2. —APPROACHES TO PANCREAS AND POSTERIOR WALL OF STOMACH.

1, Gastrohepatic route; 2, gastrocolic route; 3, transmesocolic route; 4, retro-omental route.

creatitis. Pain is the most important and most variable symptom. It usually occurs as colics; it may be dull and continuous, or intermittent. Usually it it most marked in the epigastrium and back and radiates along the left costal margin. Glycosuria is somewhat rare and is seen in advanced cases only. In the 70 cases collected by Oser, 24 showed diabetes or transitory glycosuria. In the 28 cases operated upon glycosuria was noted in but one case at the time of operation and in another it developed some years later.

Stool changes were uncommon. Fatty stools were noted in only three of the 28 cases operated on. Jaundice was present in six of the series operated on. It was associated with gallstones in two cases; in four cases no gall-stones were present. Jaundice of a mild degree was caused by edema of the head of pancreas or obstruction of the lower end of the common duct by the calculus as it reaches the ampulla of Vater.

Figure 3.—Catheters in Ureters. Shadows on both sides in region of head and tail of pancreas.

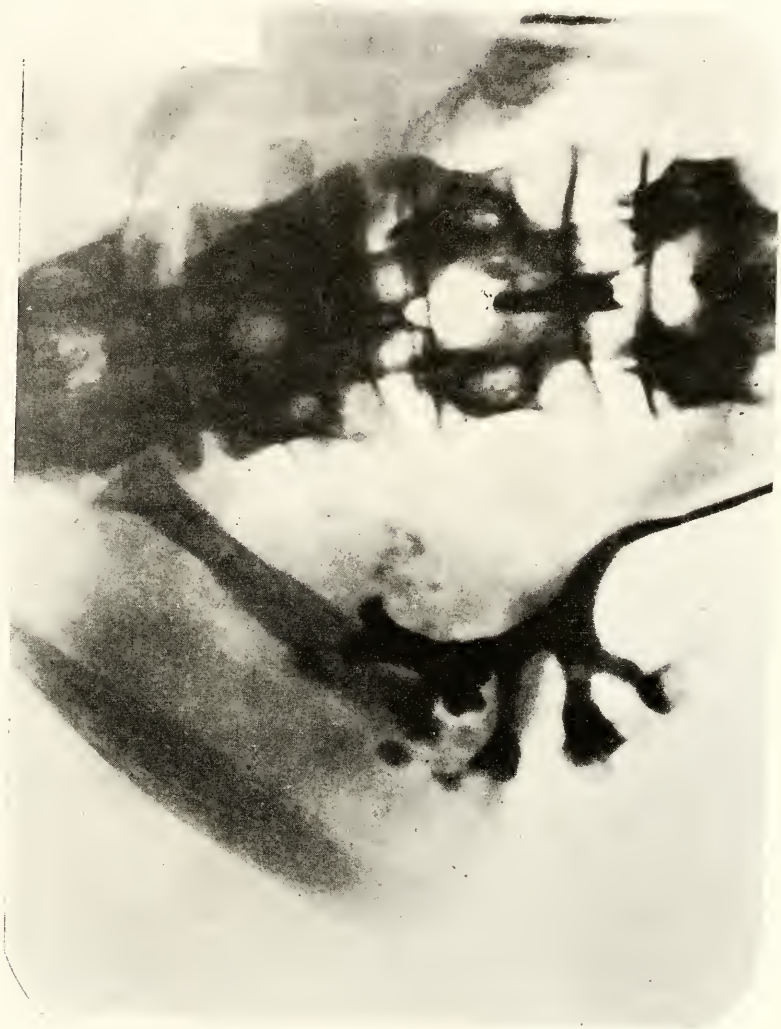

Figure 4.—Pyelogram of left kidney :Normal pelvis and calyces. Shadows outside of kidney.

The youngest patient was 20; the oldest 68; over half were under 40. There were twice as many women as men in the series.

As the symptoms would indicate, diagnosis is very difficult and was made only twice. A positive X-ray diagnosis was made before my second operation. The use of X-ray is a great aid in diagnosis, because of the large amount of calcium present in these stones. In the presence of shadow in the region of the pancreas care must be taken to rule out kidney calculi, as was necessary before my second operation. (Figs. 4 and 5).

Operative Treatment: The approach to the pancreas (Figs. 1 and 2) may be made by incising the gastrohepatic or gastrocolic omentum, or the transverse mesocolon. The latter route gives good access to the tail of the gland, but care must be exercised in this procedure not to injure the middle colic artery. Access to the posterior surface of the gland is obtained by mobilizing the duodenum along the right side of the descending portion. The papilla of Vater is exposed by incising the duodenum. In general, the chosen avenue of approach to the pancreas should depend upon the location of the stones.

The 26 cases analyzed by Seeger only two patients died, so the mortality rate with the two successful operations here added, would be about 7 per cent. No evidence of fat necrosis was found in the two fatal cases, nor was there any other complication from exposure of pancreatic tissue. No permanent fistula developed in any case in which stones were removed. My first case had fistula for six weeks. This series demonstrates that the action of the pancreatic juice on the tissues is not to be considered one of the great dangers in pancreatic surgery.

I would stress the gratifying results that have attended the surgical treatment of this condition since Caparelli, in 1876, reported the first case successfully operated on.

The following is a report of two cases in the same patient in which stones were removed, first from the head of the pancreas in 1921, and second, from the tail of the pancreas 10 years later—in 1931. The patient made good recovery in both instances.

REPORT OF CASES

Case 1: Man, 37, who had had usual childhood diseases, at age 12 began to suffer with indigestion, gas on stomach and attacks of colicy pains in epigastrium, sometimes slight and at other times very severe, of two or three days to two or three weeks duration. There was little nausea, but the patient was able to eat very little during attacks. The patient had army service in World War, during which he had repeated attacks. Several gastro-intestinal X-ray series were negative. Appendectomy was done in 1921 with no improvement. Attacks grew progressively worse, more frequent and of longer duration. Gastric analysis and another X-ray series were negative in 1921. In this year occurred his worst attack of sudden, acute epigastric pain, radiating to the back and left side along

the costal margin. Morphine gr. 3/8 at a time was required for relief. Admitted to Presbyterian Hospital June 1921, where I first saw him. He appeared to be a very sick man, suffering excruciating pain. There was marked tenderness and rigidity across the upper abdomen; both recti abdominis stood out very prominent and rigid; the lower abdomen was slightly rigid. Chest negative. P. 130, t. 103-104, r. 30, white cells 26,000, red cells 4,500,000, hem. 90%. Urine was normal and Wasserman negative.

Operation was done on the tenth day of acute illness. Right rectus incision was made and the gall-bladder, stomach and duodenum found normal. The head of pancreas was very large and indurated, and a grating sensation was made out on palpating the head. A blunt opening was made in the head with a hemostat and several ounces of thick pus with colon odor, and a number of small stones, removed—also a bit of tissue for section. A rubber tube and rubber-tissue drains were put in. There ensued a stormy post-operative reaction. Convalescence was slow, with a pancreatic fistula which drained for six weeks and was very irritating, but thick coating of zinc oxide ointment protected the skin well.

Case 2: The patient made a good recovery and remained well until May 1930 when he had another attack of epigastric cramps with a drawing sensation and slight nausea, but no vomiting. This attack lasted about a week and required several hypodermics of morphine. X-ray showed a number of small shadows across the upper abdomen in the region of the pancreas. He remained well, however, until Oct. 4, 1931, when he developed an acute attack of cramp-like pain along the left costal margin and over the left kidney and referred to the left shoulder, with nausea and some vomiting. This was the first attack of pain on the left side. Patient was again admitted to Presbyterian Hospital on fifth day of attack. There was tenderness and rigidity over the upper abdomen, most pronounced along the left costal margin and over the left kidney. The pulse was 120, t. 103, r. 26, white cells 24,000, red cells 4,100,000, hem. 85%. Stools were negative for fat, urine normal other than for few pus cells. G-U. examination was negative for pus and the pyelogram revealed nothing significant. X-ray examination showed a number of stones across the upper abdomen at about the situation of the pancreas, from head to tail. The patient was kept under observation for 10 days with no improvement, requiring sedatives, amatol and morphine for his severe pain. Operation was performed on the 15th day, Oct. 19. Left rectus incision was made and a large indurated mass felt about the tail of pancreas and attached to the spleen. There were old dense adhesions about the head of pancreas and stones could be felt in the head. The mass at the tail seemed to present best along the left transverse mesocolon and this was the route chosen. The upper jejunum was attached to the mesocolon about the mass. In freeing the loop a fistulous opening was produced, so dense and ulcerating was the attachment. The mass was opened by blunt dissection and several ounces of thick pus with colon odor, much necrotic

28 CASES OPERATED UPON REPORTED IN LITERATURE

Reported By	Age Sex	Pain	Other Symptoms	Jaundice	Gall Stones	Glycosuria	Pathology	Outcome
Caparelli, 1876						Sugar late in disease.	Many stones in an abscess.	Recovered. Death years later from diabetes.
Prewitt, 1898			Weight loss, tumor.				One stone in abscess.	Not stated.
Gould, 1898	46 Male	Absent	Loss of weight, strength and appetite. Clay colored stools.	Marked.	None.	None.	Pancreas and liver enlarged. Pancreas contained several stones in body and in duct of Wirsung. Stones were ca.-carb.	Died, 12th day. Peritoneum clear except for abscess in region of caecum.
Dalziel, 1902				None.	None.		One stone in duct of Wirsung. Size of a pea.	Recovery.
Moynihan 1902	57 Fem.	Epigastric of type of hepatic colic but less severe. Radiated to back.	Wasting of flesh. General health loss. Pigmentation of skin in patches. Greasy, frothy stools. No chills or fever.	None.	None.	None.	Pancreas enlarged especially head. One stone in terminal portion of duct.	Recovery.
Allen, 1903 (Clark-Burnam)	30 Fem.	Paroxysmal, epigastric radiating to left lumbar area.	Lost 50 pounds in 1 year. Chills and fever. Clay colored stools.	Early for one week. Not with later pain.	None.	None.	Two cysts of pancreas containing two stones. Calcareous material throughout pancreas, which was atrophic. Autopsy report showed islands of Langerhans preserved.	Died, 5th day. Autopsy showed no peritonitis.
Mayo-Robson, 1904	57 Fem.	Severe			None.	None.	One stone in duct of Santorini, two in duct of Wirsung, one in pancreas.	Recovery.
Hollander, 1905	48 Male	None	Marked Jaundice, emancipation. Enlarged liver and spleen. Epigistric tumor (late), clay colored fatty stools.	Marked.	None.	None.	Pancreatic cyst containing fluid containing cholesterin and one ca.-carb. stone.	Recovery.
Staehlin and Roeber, 1905	39 Fem.	Deep seated, boring pain in epigastrum. Intermittent attacks.	Fatty stools.	None.	None.	None.	Four stones in head of pancreas.	Recovery.

28 CASES OPERATED UPON REPORTED IN LITERATURE---Continued

Reported By	Age Sex	Pain	Other Symptoms	Jaundice	Gall Stones	Glycosuria	Pathology	Outcome
Ruth, 1907	27 Fem.	Upper abdominal colic.	Long history. Never strong. Stools normal.	None.	None.	None.	Pancreas large. Many ca.-carb. stones in duct in body of pancreas. Some were polished by movement of aorta.	Recovery.
Link, 1911	22 Fem.	Paroxysmal, left kidney region, radiating down ureter.	Emancipation, anaemia intermittent hydronephrosis suspected an doperation for this performed. Kidney normal. Stools normal.	None.	None.	None.	Multiple calculi with marked interstital pancreatitis.	Recovery.
Friedlander, 1911	54 Fem.	In attacks. Upper right abdomen.	Fever and vomiting with attacks.	Following attacks.	Present.	None.	Cholesterin stones in gall bladder. Common-duct, pancreatic duct, and head of pancreas. Chronic cholecystitis.	Recovery.
Murray, 1911	40 Fem.	Severe, epigastric, in attacks.	Long history. Operation for gall stones. none found. Six weeks later operation for pancreatic stone.	With later attacks.	None.	None.	Gall stones. One stone in pancreatic duct.	Recovery.
Lacoutre and Charbonnel, 1914	32 Fem.	Violent attacks, upper right abdomen radiating to back.	Vomiting.	None.	None.	None.	Two ca.-carb. stones. One in head of pancreas and one in wall of gall bladder.	Recovery. Later X-Ray showed over-looked stone.
Dowd, 1915	32 Fem.	Severe epigastric, referred to pancreas.	History over several years. Passed mulberry calculi in stools.	None.	None.	None.	Fat necrosis. Abscess in head of pancreas. Thirty or more stones in the abscess.	Recovery.
Hartig, 1915	34 Male	Upper abdominal radiating to shoulders.	X-Ray negative, stools normal.	None.	None.	None.	Two calculi in a carcinoma of head of pancreas.	Recovery for five months. Death due to carcinoma.
Navarro, 1921	? Fem.	Pain similar to that of gall stones.	Dull ache over pancreas.	Recurring.	Present.	None.	Three calculi in pancreas. Cholecystitis with stones.	Recovery.

28 CASES OPERATED UPON REPORTED IN LITERATURE---Continued

Reported By	Age Sex	Pain	Other Symptoms	Jaundice	Gall Stones	Glycosuria	Pathology	Outcome
Lindsay, 1922	29 Male	Violent epigastric radiating to back and to left.	15-year history. X-Ray showed shadows outside stomach. Stools normal. Irregular pigmentation on face, neck, and chest. Slight wasting for 2 years.	None.	None.	None.	Six large and many small stones of ca.-carb. in pancreas. The gland tissue was thinned and the ducts dilated and thickened. Cultures sterile.	Recovery.
Sistrunk, 1921	48 Fem.	Epigastric, cramp-like.	Diarrhoea. Loss of weight and strength.	Marked.			Had a duodenal ulcer. Gastro-enterostomy made. Spleen large. One stone about 1½ in. above ampulla in pocket of pancreas.	Recovery.
Sistrunk	33 Male	Colicky, several years.	Operated upon 1 year before for gall stones. Pancreas found to contain stones then, but these were not removed until later operation.		Present.	Present.	Many stones in duct of Wirsung and pancreas. Some in duct of Santorini not removed. Appendix diseased.	Increased sugar tolerance. Recovery.
Sistrunk	68 Fem.	Epigastric, radiating to left.	15 pound weight loss.				Many stones in head of pancreas, apparently in main duct.	Recovery.
Sistrunk	62 Fem.		Duodenal ulcer history 15 years.				Ulcer found. Gastro-enterostomy. One stone in pancreatic duct near ampulla.	Recovery.
Hartman, 1925	20 Fem.	Periodic attacks, increasingly severe, high in the epigastrium; radiation to the midscapular region.	Vomiting, leukocytosis —19,600; no fever. No weight loss.	None.	None.	None.	Elongated tumor mass, 6 cm. in diameter, made up of pancreatic tissue and ducts; filled with many pancreatic stones, large 4 mm. in diameter, smallest like sand. Small cyst at one point which also contained stones; tumor attached to head of pancreas.	Tumor removed. X-Ray taken after operation, showed multiple shadows in right side opposite first lumbar vertebra, believed to be pancreatic calculi.

28 CASES OPERATED UPON REPORTED IN LITERATURE---Continued

Reported By	Age Sex	Pain	Other Symptoms	Jaundice	Gall Stones	Glycosuria	Pathology	Outcome
Hartman, 1925	33 Fem.	Dull soreness in epigastrium, worse after meals.	No weight loss. No other symptoms. Pelvic tumor present.	None.	None. Moderately severe chronic catarrhal cholecystis.	None.	Many stones in head of pancreas.	Stones which were easily accessible removed. Immediate postoperative convalescence normal.
Hartman, 1925	45 Male	Dull aching in epigastrium immediately after meals. Pain never severe.	No weight loss. Vomited "coffee grounds" short time before operation. Epigastric tenderness. Duodenal deformity seen by X-Ray.	None.	None.	None.	Marked hepatitis, probably the cause of gastric bleeding; marked catarrhal cholecystitis; calcified irregular mass 2.5 cm. in diameter in contact with tail of pancreas, believed to be pancreatic in origin.	Uneventful convalescence.
Hartman, 1925	45 Male	Classical history of duodenal ulcer, 8 years' duration.	No weight loss. High gastric acidity. X-Ray showed duodenal ulcer.	None.	None.	None.	Stone 1 cm. in diameter, lower edge of body of pancreas. Duodenal ulcer.	Uneventful recovery following gastro-enterostomy. The pancreatic stone probably caused no symptoms.
Bost, 1921	26 Male	Violent epigastric cramps radiating to back and along left costal margin.	Fifteen years duration. X-Ray and gastric analysis negative. Epigastric tenderness and rigidity. Nausea and vomiting. Temperature 103-4 degree. Leucocyte count —26,000. Underweight.	None.	None.	None.	Head of pancreas much enlarged. 3-4 times normal size. Number of calcium carbonate stones removed. Also thick pus drained. (Biliary tract normal.)	Recovery. (Had pancreatic fistula for six weeks.)
Bost, 1931 (Same patient 10 years later.)	36 Male	Cramps upper left side and back, also over left kidney and referred to left shoulder.	Attact 10 days duration. Nauseated. Slight tenderness upper left side. No rigidity. Stools and previous gastric analysis negative. X-Ray multiple, stone shadows in head and tail of pancreas.	None.	None.	None.	Adhesions from previous condition. Stones palpated in head of pancreas. Large mass about tail of pancreas. Number of stones and thick pus with colon odor drained from mass.	Recovery.

material, and a number of small stones were removed. Very little bleeding was encountered until the bridge under the back was lowered and the incision was about to be closed, when a severe hemorrhage occurred from the abscess cavity. No vessels could be seen. The cavity was packed with uterine packing and this left in with a rubber tube and a cigarette drain. After encountering pus it was decided not to disturb the stones in the head of the organ. The patient reacted well and the gauze packing was removed piecemeal by the end of the first week. The patient was discharged from hospital in two weeks. His convalescence was rapid and uneventful and he has since been able to follow his occupation.

Note: March 10, 1933. The patient now appears to be in good physical condition. He reports that he has had several slight attacks of epigastric pain for a few hours, but has not required morphine or other anodyne since the operation in 1931. Examinations of urine for sugar have been negative to date, notwithstanding probable injury to islands of Langerhans resulting from abscess of tail of pancreas.

SUMMARY

1. Pancreatic lithiasis is comparatively rare. The literature reveals a total of 107 cases, most of this number being autopsy findings.

2. Only 28 cases have come to operation and had stones removed. This group is here tabulated, including two of my own cases.

3. It is probable that other cases have been operated on and not reported. It is also very likely that other cases have been overlooked at operation and also at autopsy.

4. The formation of stones is probably caused by infection in the ducts or through the lymphatics.

5. The most common symptom is a colicky or dull pain in epigastrium with some tendency to left-side radiation.

6. Glycosuria is rare but may develop late or in advanced cases. It was present in only one of the 28 cases at time of operation.

7. Stool changes are uncommon. Fatty stools noted in 3 of the cases operated on.

8. Jaundice was present in 6 of the cases operated on. It was of mild type and thought to be due to edema of head of pancreas, making pressure on the common duct. In two cases gall-stones were present also.

9. X-ray is of the greatest diagnostic aid, as stones contain large amount of calcium carbonate. However, pre-operative positive X-ray diagnosis was made only three times, including my second case.

10. A flat plate should be made in indefinite abdominal conditions before giving bismuth in a gastro-intestinal series, and so-called calcified gland casting shadows in region of pancreas should be looked upon as possible pancreatic calculi.

11. Operative results have been very gratifying—mortality about 7 per cent. Morbidity is not usually prolonged.

12. Palpation of the pancreas should always be done in all abdominal explorations. A peculiar crepitus exists when there are multiple stones.

13. A case is here reported in which stones were removed from the head of pancreas and 10 years later stones were removed from the tail. Stones were palpated in the head at the time of the second operation. These may have been overlooked at first operation; otherwise there had been recurrence.

DISCUSSION

Dr. J. P. Kennedy (Charlotte): Mr. Chairman: I was especially interested in Dr. Bost's report, because it fell to my lot to assist in the first operation in which the appendix was removed from this man. That was back in 1920, and at that time he gave a history of periodic attacks of upper abdominal colic beginning when he was eleven or twelve years of age. I think that is an interesting thing, that evidently in this case those stones began to form at that early age, or at least they began to give symptoms at that early age.

The attacks were colicky pain, which came on immediately after eating, and then he would feel perfectly well. These attacks would come two or three days at a time, and then he would have a period of several months in which he would have no attacks at all. In that operation the record did not state whether the pancreas was felt or not. I take it that it was, because a note was made that the gall bladder felt normal, the stomach was normal, and there were several enlarged retroperitoneal glands. It is rather difficult in feeling the head of the pancreas to tell whether there is anything in the head of the pancreas, or whether the enlargement, or hardness, is due to simply an inflammation. In this particular case, I think Dr. Bost deserves a great deal of credit for discovering the abscess and stones and bringing the man through.

In regard to the diagnosis, I think that a good many of these stones show in the X-ray but are taken to be calcified glands or something else. I noticed the report of one X-ray man some time ago in going over the series of X-rays of about seven hundred cases of upper abdominal complaint, and he found three cases which showed stones in the pancreas which had been overlooked in the general examination of the X-ray field. However, Sistrunn reported several years ago that four cases of stones in the pancreas were found at the Mayo Clinic in eleven years—from 1910 to 1921.

I think that keeping the condition in mind in patients who have unexplained upper abdominal complaints, and also more attention to the plain X-ray films in these cases will help us discover these occasional rare cases.

Dr. T. C. Bost (Charlotte): I have no doubt but what other cases have been operated on and stones removed and not reported. It is also very likely that stones have been overlooked at operation. The pancreas and especially the head should be palpated in all abdominal explorations.

Four of these reported cases were found in the course of an exploration at the Mayo Clinic.

Since pancreatic stones are easily shown by X-ray due to their calcium content it would be very practical to make a flat plate in all indefinite abdominal conditions, before giving bismuth in a gastro-intestinal series. And to look upon with suspicion, shadows in the region of the pancreas of so-called calcified glands or what have you, as possible pancreatic stones.

PERFORATING GASTRIC ULCERS IN CHILDREN REPORT OF CASE

By A. deT. Valk, Winston-Salem

The existence and early recognition of gastric ulcers in children seems to be somewhat unusual if we can depend on the literature compiled and published on this subject, though unquestionably their existence is more common than generally considered as many such cases are probably observed and diagnosed but not reported.

Having encountered one of these cases which was erroneously diagnosed, operated upon and recovered, it was thought that a brief consideration of this might be of interest.

In a recent article, Foshee gives a very interesting review of gastric ulcers in children, reporting nineteen cases collected from the literature to date. Twelve of these were previously reported by Proctor in 1925, in a comprehensive study of chronic ulcers in children, including both the stomach and duodenum. He, Proctor, reported nineteen cases in all and assumed the age of fourteen or under as constituting childhood. Foshee's article deals with ulcers of the stomach alone, though several of his cases were classified as prepyloric ulcers with pyloric obstruction. These, no doubt, originated well within the gastric mucousa with subsequent extension and encroachment on the pyloris. While fourteen years of age is assumed as the upper limit of childhood in this report, he cites one case of fifteen years of age with the explanation that this patient gave the history of several years duration. The case herein reported was fifteen years of age and while no previous history of gastric distress could be elicited, the condition found at operation would justify the statement that unquestionably the ulcer had existed for some months prior to perforation.

The etiology of gastric ulcers in childhood is just about as clear as in those occurring in adults which, as we know is indefinite, and they assume all the pathological aspects and changes that occur in gastric ulcers in adult life. Focal infection no doubt has a definite relationship to their existence.

The duration of symptoms is interesting though most variable, ranging from two months to ten years. Pain, vomiting and constipation are the most common and constant symptoms, being more constant than in adults. Hemorrhage is not an outstanding symptom.

In Foshee's report three cases had symptoms of less than one year, two of one year duration, five of two years existence, two of three years, six of more than three years and one in which this history was not stated.

Of the nineteen cases reported there were five deaths and fourteen recoveries. Fourteen of these patients were operated upon with thirteen recoveries, the surgical procedure being noted in five cases: namely, one anterior gastro-enterostomy, three posterior gastro-enterostomies and one partial resection.

There were six perforations in this series of cases, four of whom were operated upon with only one death, this being due to an incorrect diagnosis. Including the case herein reported the percentage of perforations of gastric ulcers in children is 35%, which seems much too high as compared with the percentage of perforations of gastric ulcers as a whole and no doubt this would prove to be the fact if all cases were diagnosed and reported. An early diagnosis is most important though difficult, as in many instances the ulcer is first brought to light by initial hemorrhage or perforation.

In all frail, poorly nourished children, giving a history of periodic gastric disturbances, this condition should be seriously considered and a careful study made.

The treatment of perforating ulcers in children is, of course, no different from the general consideration of perforating ulcers in adults. Possibly the lapse of time between perforation and operation might have a more serious bearing upon the outcome in children than in adults, but as we know this is the deciding factor between recovery and death in the majority of such cases, irrespective of age.

As a rule, children stand operations fairly well. Whether the perforation is simply closed, a gastro-enterostomy or a partial resection resorted to, is dependent upon the patient's general condition as well as the particular findings at operation, the safest procedure always proving to be the best. If the ulcer is near the pyloris with partial obstruction resulting, or where a simple closure is made with subsequent narrowing of the lumen, a gastro-enterostomy cannot be avoided.

It is interesting to note the satisfactory results in the average case were the perforation is simply closed. The post-operative treatment in all cases, regardless of type of operative procedure, is most important and should be diligently watched over a period of months as to diet, etc., with X-ray observations from time to time; any subsequent procedure being dependent upon the progress shown.

Case Report: H. L. C., aged 15, referred by Dr. B. B. Pool, and admitted to Memorial Hospital October 20, 1930, complaining of acute abdominal pain, nausea and vomiting. The family history is interesting in view of the fact that the father has a gastric ulcer and was operated upon for a ruptured appendix several years ago.

Past History: Always a well nourished, strong child. No serious illness, though had all the diseases of childhood. Has had two previous attacks of abdominal pain somewhat similar to the present illness, though very mild and of short duration. No apparent digestive disturbances. Bowels regular, no melena, no loss of weight, no urinary disturbance.

Present Illness: Patient had been quite well until about two hours before admission to hospital when he began to have dull pain in abdomen, in region of umbilicus, which rapidly increased in severity and became more general. No nausea or vomiting at onset but vomited on admission to hospital. The pain became most severe and more localized just to right and below umbilicus. No radiation of pain. Bowels slightly constipated.

Physical Examination: Revealed a well developed boy lying in bed with both legs drawn up on abdomen and apparently in much pain. No sedative had been given up to this time. Eyes, ears, throat and nose negative. Thorax well formed. Heart and lungs apparently normal. Temperature 99.4° and pulse 89—regular. The abdomen was normal in appearance, though slightly scaphoid and held somewhat rigidly throughout, this being definitely more marked in right half. Tenderness elicited was greatest around and slightly below the umbilicus. The liver dullness was normal. Inguinal regions, genetalia and extremities were negative. Urine was negative other than an occasional pus cell. On admission (7 P. M.) leucocyte count was 12,100 with 78% neutrophilis and at 8:30 P. M. this had gone to 22,000 with 91% neutrophilis. A diagnosis of appendicitis was made.

Operation: Ether anesthesia. A McBurney incision was made and on opening the abdomen a large amount of cloudy, brownish-green fluid escaped. The appendix was essentially negative and not removed. A hasty closure of McBurney incision was made and a high right rectus incision resorted to. A perforated gastric ulcer was found. This was prepyloric, extending downward along the greater curvature with a large indurated base suggesting its existence over a rather long period of time.

The ulcer was simply closed with a fine plain catgut mattress suture, reinforced with two layers of silk, mattress sutures. This caused very little narrowing of the pyloris and the incision closed with one small cigarette drain in lower angle.

The post-operative course was uneventful and patient was discharged on the nineteenth day after operation.

The subsequent course of this case has been free from any gastric disturbance, though a recent X-ray observation suggests some activity of the ulcer.

In reviewing this case there were two points which might not have been given sufficient consideration in making our diagnosis, though a frank confession is made that gastric ulcer was not even considered. One is the very acute onset with pain somewhat out of proportion to the average pain in appendicitis, and the second, that of rigidity of greater intensity than usually found.

ASEPTIC ANASTOMOSES OF THE GASTRO-INTESTINAL TRACT

By Addison G. Brenizer, A.M., M.D., F.A.C.S., Charlotte, N. C.

Since the operation of intestinal anastomosis carries with it more instruments and more names than any other operation in the whole field of surgery, immediately that I saw Dr. Tyler's instrument, one of the latest models, or the Shoemaker or Pringle or Bainbridge clamps, I had a longing desire to make me one, using the very thin Pringle blades and a Carwardine screw to hold the clamps together instead of a Hoffman cut-off. Then we would have the Brenizerische modification of the Pringlerisches-Carwardinisches Tylerisches Apparat.

Halsted[1] published, in 1921, a tying and burning of the bowel ends, bringing together the closed ends and puncturing the double diaphragm with a housed knife; Shoemaker,[2] in 1921, clamped on the mucosa after cutting through the serosa and muscularis and cuffing this layer back, severed the mucosa and sewed the cuffs over the clamps; Highsmith,[3] in 1923, used a silk worm gut loop to close Halsted's abutted ends and when abutted withdrew it after cutting; Kerr,[4] in 1923, used a basting stitch after clamping and tucked the shelf in—both Horsley and Stone have had obstruction from the two widely invaginated shelf. Fraser and Dott,[5] in 1924, used a guillotine ligature still adhering to the Halsted abutted closed ends and reported an obstruction; Pringle[6], in 1924, employed clamps with very narrow blades, but could not cut to the mucosa without sometimes entering the bowel, therefore crushed the whole bowel and sewed the plications of the bowel over the clamps, stating that the mucosa need not be closed separately, nor should the crushed shelf be too wide since Fraser and Dott had had an obstruction by the broad shelf; Shoemaker,[7] again in 1927, employed the narrow blades of Pringle, but still on the mucosa; Tyler has twin clamps with blades flat on the opposing sides and beveled on the bowel side but not as narrow as the Pringle or Bainbridge blade, held together with a Hoffman cut-off. There are many devices for holding twin clamps together, not only to keep them from shifting apart but to prevent sliding up and down—the Carwardine pin and screw on the handles or Narath's rachet and screw on the shanks are good.

I have thought, quietly to myself, why use a special instrument at all; why not employ an ordinary pile clamp as the most powerful bowel-crusher and making the narrowest ledge. The crushed portion is so well crushed, that it is translucent and remains adhered after crushing and burning, on the removal of the clamps. If one does not feel sure that the crushed end will remain closed from cohesion alone, this may be assured by the application of little V-shaped wires, as applied to cerebral vessels or a through and through strand of fine cat gut clamped at each end. The little V-shaped wires or fine cat gut can be opened with thumb and finger invagination after the bowel is anastomosed.

If one still cares for a fancy technic, a von Petz clamp, which is a sort of a cross between a Payr crushing clamp and a mechanism for inserting a double row of staples across the bowel, one might follow Bancroft who has exhibited such an instrument and who has shown by X-rays that these staples persist in situ for a considerable period of time and are gradually extruded. An autopsy, six months after operation, showed that there was no foreign body reaction about a staple which still remained in the intestinal wall.

Of course the exclamation follows, as to the harker who was selling the bed bug killer; "Just catch the little fellow by the back of the neck and squeeze him till his mouth flies open, then drop a drop of this preparation into him and it will kill him as dead as a door nail." Someone in the crowd rejoined; "Instead, I could stamp his darn brains out." The harker, undaunted, replies; "Well, my good friend, that's another good way."

More important than how you do the anastomosis is where you do it, on the right colon or the left. A one stage operation can be done on the right side with a mortality of about 10%, on the left side with double that mortality. The only way to bring the left side mortality down to the level of the right side is to drain the proximal segment of the colon by a cecostomy or colostomy beforehand or at the time of the operation. Cheever reports, from a series at the Brigham Hospital, that the mortality rate for 31 resections of the colon with preliminary colostomy was 9.6%, while for 47 resections without colostomy was 25.5%. John Gibbon (Annals of Surg., July 1932) reporting 20 cases, and using the Kerr basting stitch in 17, remarks: "It will be seen in the table that I have done five resections without a cecostomy. One of these cases died of peritonitis and I have a feeling he might have lived had I done a cecostomy."

The paramount obstacles to success are infection and obstruction, the bowel wall may be teeming with bacteria and the blood supply may be poor from certain anomalies in vessel anastomoses, particularly in the left colon; the bowel content becomes quickly hardened and the combination of bacteria, poor blood supply, temporary lameness from operation, gas distension and hardened fecal matter may be responsible for a leak late in the post-operative course. Retro-peritoneal cellulitis, local abscess formation and peritonitis account for most of the deaths following surgery of the colon and these infectious invasions cannot always be forestalled by any method of so-called aseptic anastomosis and it is questionable, at least, whether one should ever be tempted to do an anastomosis, particularly on the left side of the colon, as can be done on the right side, without a preliminary drainage of the proximal segment.

However, the anastomoses of the gastro-intestinal tract are quite easy with a simple pile clamp, whether the operation be gastro-enterostomy, duodeno-jejunostomy or the various intestinal anastomoses. The pile clamp is a powerful crusher, so powerful that when applied to the stomach or the intestine, the softer tissues, the mucosa and muscularis are squeezed

aside under the crush and when the viscus is seared through with a cautery and the clamp removed the cohesion alone is sufficient to hold the stomach or intestine closed at the crushed strip. The crushed strip or future ledge is very thin and translucent, made up only of muscularis mucosae and serosa; the blood vessels are completely occluded by the crushing and burning with the cautery. Two ends of crushed and seared stomach or gut are easily approximated and sewn raw on the narrow crushed ledge and the opening assured by invagination of the fingers through the opening. The two edges are also thus turned in. According to the above description not a drop of content nor blood is spilt. The crushing pile clamp, or several of them, offers an enormous advantage in duodeno-jejunostomy, where clamps left in place are often in the way and cumbersome, which condition of awkwardness not infrequently is encountered in doing a gastro-enterostomy or even a Billroth No. I or II.

The advantage of the pile clamp in doing entero-enterostomy, particularly end to end of the small intestine is not only the absolute control of content spilling and bleeding but the very narrow ledge or shelf. The curved pile clamp in gastro-enterostomy, duodeno-jejunostomy and side to side or end to side anastomoses creates a round opening instead of a slit and thus offers a more assured patency of the anastomosis. If any uncertainty is felt about the cohesion of the crushed and adhered strip, its closure may be assured by the insertion of a continuous mattress suture clamped at either end and which can be withdrawn or broken when the anastomosis is completed or the application of the small V-shaped wires which can be opened with finger and thumb pressure and passed by the bowel. If anything is used I prefer the fine catgut.

It is advised on first doing the operation that a new curved pile clamp be used, Roosevelt clamps be placed as guards and the fine continuous mattress suture be placed to forestall all errors and assure an aseptic technic.

CASE REPORTS

Case 1: Man 38, large indurated pyloric ulcer adhered to liver and pancreas. Gastro-enterostomy with pile clamp.

Case 2: (J. E.) Man 69, carcinoma of cecum, partial obstruction; glands in meso-colon; resection of hepatic flexure and terminal ileum; healing without drainage; living at 85.

Case 3: (A. F.) Woman 34, carcinoma of cecum, resection along ascending colon and terminal ileum; healing with slight drainage; living at 43.

Case 4: (J. V.) Man 52, large hypertrophic tuberculous ulcer of ascending colon; resection above cecum and above ulcer, preserving cecum; tubercle bacilli in sputum; healing with slight drainage and fistula, closed in three months; living at 60.

Case 5: (A. T.) Man 32, ileo-sigmoidostomy two years previously, three fistulae through abdominal wall, polypous tuberculosis of ileum and

cecum; resection of cecum and 4½ feet of ileum; healing with slight drainage; living at 45.

Case 6: (C. T.) Girl 19, magalo-colon; resection at transverse colon then ileo-sigmoidostomy, both healing per primam; colectomy, closing sigmoid and ileum ends. Death from peritoneal cellulitis on 17th day; leak and invasion from sigmoid end.

Case 7: (C. B. B.) Large hypertrophic diverticulum of sigmoid; resection rectal tube up through anastomosis. Transverse myelitis about fourth dorsal segment from occlusion by embolus of anterior median spinal artery on 14th day.

May I show you a few slides of these cases and anastomoses done "country style."

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DISCUSSION

Dr. Donnell B. Cobb (Goldsboro): Gentlemen: Dr. Brenizer in his usual interesting way has told us of a new method of doing an aseptic anastomosis. He has delineated a number of cases wherein this method has been used successfully, and in doing this he has elevated the pile clamp beyond the realms of my imagination.

The operation of intestinal anastomosis has a wide range of usefulness. Practically all lesions of the gastro-intestinal tract that are amenable to surgery, with the exception of appendicitis, entail some form of resection and suture. In spite of the fact that this operation is done comparatively often there has been no general agreement as to the best procedure. This, I think, is evidenced by the fact that during the last century two hundred and fifty different methods of intestinal suture have been described and no less than thirty-two separate and distinct methods of aseptic anastomosis have been proposed. But when we sift through such a confusion of ideas and such a network of technique we find that the many proposed methods of aseptic intestinal anastomosis have in common four basic principles:

1. The aseptic excision of a segment of intestine.

2. The temporary closure of the ends of the intestine without spilling of contents and with control of bleeding.

3. The abutting and anastomosis of the two stumps by suture.

4. The opening of the double diaphragm.

The second and fourth principles are intimately related. It is in their execution that surgeons vary their technique and it is in their execution that the method suggested by Dr. Brenizer seems so simple and rational.

We all know that a terrific crushing force can be applied with a pile clamp. Dr. Brenizer tells us that this force is sufficient to seal together the serous layers of the intestine—thus forming a temporary closure of the ends of the intestine. This also controls the blood supply and prevents leakage of intestinal contents. After the anastomosis has been completed the double diaphragm is readily broken open by invaginating the fingers through the anastomosis. And with the use of the pile clamp there remains an extremely narrow ledge of tissue after the double diaphragm has been opened, certainly not wide enough to produce any obstruction. In doing a lateral anastomosis or a gastro-enterostomy the use of a curved pile clamp permits the excision of an oval piece of tissue and thus the anastomosis results in a round hole instead of a slit.

I have never done an anastomosis with this technique and I believe that Dr. Brenizer is the only one who has used this method. These facts—the complete sealing off of the ends of the intestine, preventing bleeding and soiling, the readiness with which the double diaphragm can be opened by invaginating the fingers through the anastomosis, the extremely narrow ledge that results and that can not produce any obstruction, the simplicity of the instrument and the fact that we all already have one, recommend to me this method above any other with which I am familiar.

The ease and rapidity with which a resection and anastomosis can be accomplished is often an important factor in determining the outcome. It will be remembered, of course, that success in these cases is as dependent upon adequate pre-operative preparation and rehabilitation measures as upon technical procedures.

I wish to congratulate Dr. Brenizer and to thank him for presenting this valuable idea to us.

Chairman Newman: The scientific program has been completed, and we now have the selection of next year's Chairman for this Section. I am not permitted by custom to state the method of procedure. If there are no objections, we will have nominations from the floor for the Chairman of the Surgical Section for next year.

. . . Dr. A. G. Brenizer, Charlotte, was elected Chairman for 1934 . . .

Dr. R. B. McKnight: About a year ago the Southeastern Surgical Congress deemed the time ripe to launch upon a rather bold scheme in sponsoring a new periodical. There are only four general surgical periodi-

cals in America: *The Archives of Surgery; The Annals of Surgery; Surgery, Gynecology and Obstetrics,* and the *American Journal of Surgery.* There was only one sectional journal, *The Western Journal of Surgery. The Southern Surgeon* now constitutes the baby member of this group, and it is a lusty infant.

At present it appears quarterly, soon we hope to get it on a bi-monthly basis, and when times get better, on a monthly basis. Proof of the success of this undertaking is clear when one realizes that *Journal of the A. M. A.* has abstracted about one-third of the articles which have appeared in *The Southern Surgeon.* This speaks well for the quality of the material appearing therein and for its editorial excellency.

North Carolina has been signally honored by the appointment of Dr. H. A. Royster as a member of the Advisory Editorial Board and myself as Associate Editor. Only two salaries are paid, one to the Editor-in-chief and the other to the Managing Editor. These are indeed small.

The purpose of this journal is to advance southern surgery and to give the surgeons of the South a means by which their opinions and experiences in their chosen specialty may be expressed.

The cost is only three dollars a year. I have a number of issues on exhibition in the hall and would appreciate it if you will look them over and if you see fit, let me have your subscription. We need more in North Carolina. Thank you.

SECTION ON PRACTICE OF MEDICINE

TUESDAY, APRIL 18, 1933

The Section convened in the Ball Room, Hotel Sir Walter, Raleigh, North Carolina, at two-fifteen P. M., Dr. Paul F. Whitaker, Kinston, Chairman of the Section, presiding.

CHAIRMAN WHITAKER: Before we start the program, I want to appoint a committee of three to listen to these papers and judge which paper they think has the most merit and report their opinion to the Chairman of this Section in order that he may transmit that opinion to Dr. McBrayer so that the paper presented before this Section may be considered in awarding the Moore County Prize for the best paper of the year before the Society. I will appoint on that Committee Dr. William H. Smith from Goldsboro, Dr. Mosely of Kinston, and Dr. DeWitt Kluttz of Washington. You will meet after the papers have been presented and decide on a chairman and then transmit to me the decision as to the paper that you consider most meritorious.

The first paper on the program this afternoon is, "The Treatment of Diabetes Mellitus by the General Practitioner." This paper is by Dr. M. L. Carr, of La Grange, North Carolina.

THE MANAGEMENT OF DIABETES MELLITUS BY THE GENERAL PRACTITIONER

By DR. M. L. CARR, LaGrange, N. C.

This paper is presented with the idea that it might stimulate more interest in the management of diabetes.

In beginning treatment there should be a thorough understanding between doctor and patient regarding cooperation and what may be expected from management.

The treatment should accomplish freedom from ketosis and sugar, adequate nourishment and maintenance of the blood sugar at a normal level.

Certain laboratory equipment is necessary. This should consist of apparatii and reagents for determining blood sugar, qualitative and quantitative urinary sugar and acetone bodies.

Each patient should be equipped with a manuel for diabetics, scales graduated in grams, test tubes and reagents for determining sugar in urine.

A history is taken and a complete physical examination and laboratory work is done on every patient. Foci of infection or associated diseases are noted and unless demanding immediate attention, they are treated later when the patient is desugarized and in better condition generally.

The patient is instructed to collect and measure a twenty-four hour specimen of urine and to bring a portion of it for analysis. He is to report without breakfast so that a fasting blood sugar and glucose tolerance test can be made. These tests confirm the diagnosis and give an idea of the severity of the disease, as well as suggest the patient's tolerance for carbohydrates.

In planning the diet the following points should be considered:

1. The caloric requirement.
2. The correct proportion of carbohydrates, proteins and fats.
3. The cellulose content of the food.
4. The proper balance between acid-ash and alkaline-ash foods should be attained.
5. The mineral and vitamin content of the diet should be sufficient.
6. The diet should approach that for a normal individual as nearly as possible.
7. The total amount of food should be divided equally into three meals.
8. Sufficient insulin should be given and the dose so arranged as to prevent insulin shock and the spilling of sugar in the urine.

The caloric requirement is based upon the surface area, sex, age, body temperature, muscular activity and state of nutrition. A practical method for determining the calories required is to ascertain the normal weight in kilograms and multiply this number by thirty-five. The results will be the caloric requirement for a patient doing light work. If hard manual labor is to be performed the caloric requirement will have to be more.

An adult will require from one-half to one gram of proteins per kilogram of body weight. The protein should not be lower than one-half gram per kilogram of body weight. Children require two to four grams of protein.

If the diet is to simulate that of a normal individual the ratio of carbohydrates to fats should be two to one. Thus each gram of fat which yields nine calories should be accompanied with two grams of carbohydrates yielding eight calories. To obtain the number of grams of fat and carbohydrate desired, the number of calories supplied by the protein in the diet are subtracted from the total caloric requirement and the remainder is divided by the number seventeen. The quotient will be the number of grams of fat required. Since the carbohydrate is to be twice the amount of fat the number of grams needed can be easily ascertained. For example: An adult weighing sixty kilograms will require twenty-one hundred calories. Allowing one gram of protein per kilogram of weight, the protein required is sixty grams. This amount of protein yields two hundred and forty calories. Subtracting this number from the total caloric requirement leaves eighteen hundred and sixty calories. This number divided by seven-

teen will give one hundred and nine, the number of grams of fat to be used in the diet. Multiplying the number of grams of fat by two gives the desired amount of carbohydrate.

The total number of grams of carbohydrate, protein and fat is now divided into three equal parts. The diet list is used to calculate the amount of different foods used in the diet. This is accomplished by a process of trial and substitution.

The diet should contain fruits, whole grain cereals, bread, milk, cream, eggs, meat and sea food. They should be given in sufficient quantities to nourish the body, to supply minerals, vitamins and cellulose. The fruits, vegetables and milk should be evenly distributed in the three meals to balance the acid-ash foods of meat, eggs and bread. Coffee and tea are allowed, but are best taken without saccharine as it is desirable that a diabetic lose his taste for sweets. The amount of water varies with the individual, as a rule four to six glasses are sufficient.

If a diabetic does not become sugar free on a two thousand calorie diet, it is advisable to give insulin. Thirty to forty units of insulin are given to start with. Twenty units are given fifteen minutes before breakfast and ten units at the same interval before dinner and supper. If the patient does not become sugar free on this amount of insulin in two or three days, the dose is increased, adding one unit for each two or three grams of sugar appearing in the twenty-four hour urine specimen. Should symptoms of insulin shock appear the dose is lowered. When the urine becomes constantly sugar free, the insulin may be given in two doses, five-eighths of it before breakfast and three-eighths before supper. To prevent insulin reaction and sugar from appearing in the urine the timing of the dose may be changed. Of course, while the dose of insulin is being determined it is necessary to make frequent blood sugar tests, as well as urinary sugar tests. When the patient has been desugarized and the diet balanced for sometime, he may develop an increase in tolerance. In this cas the dose of insulin has to be reduced.

The patient must be educated to do the following:

1. To weigh, measure and calculate his diet.
2. To summarize the carbohydrate, protein and fat content of it.
3. To determine the caloric value of the diet.
4. To make urinary sugar test.
5. To care for the skin, nails and corns.
6. To avoid exposure and infectious diseases.
7. To recognize and treat insulin shock.
8. If symptoms, such as nausea, vomiting and pain occur which prevent taking food, not to omit the insulin unless the urine is sugar free.
9. If sick from any cause to consult the doctor promptly.
10. To sterilize needles, syringe and skin and to administer his own insulin.

11. To take the usual amount of exercise each day.

12. What to eat when traveling.

All of this is taught as treatment progresses so that the patient can intelligently care for himself except for an occasional visit to the doctor for a general check over.

The most frequent complication of diabetes is acidosis with coma. It must be differentiated from coma due to brain injuries, coma of uremia, coma of acute infectious disease and chemical poisons. The history, the high blood sugar, the presence of sugar, acetone and diacetic acid in the urine in the absence of increased blood urea, albumin and impaired kidney function usually make the dianosis easy.

The treatment is urgent and impirical. It demands that the patient be freed of ketosis and sugar. The body fluids and heat must be restored. The diet should be reestablished and balanced as soon as possible. The patient must be educated to prevent the recurrence of acidosis. Treatment can be carried out in a hospital best. The patient is put in a warm bed with hot water bottles. Specimens of blood and urine are obtained for analysis. If there has been loss of body fluid, normal saline, 1000 cc. by hypodermoclysis is given and repeated every six hours. Insulin is given intravenously in large doses, from fifty to one hundred units every half or one hour. There should be no hesitancy in giving it as long as acetone bodies and sugar appear in the urine. Any condition which may retard its absorption if given subcutaneously is an indication for intravenous administration. Glucose should be given twenty-five grams in fifty per cent solution every six hours. It is believed that the acetone bodies are more completely burned when it is given. The patient is catheterized hourly and the urine examined for acetone and sugar. When the urine is negative for sugar and acetone, blood sugar tests are made and the insulin is given in smaller doses, being guided by the blood sugar findings. Insulin shock is to be expected and glucose should be kept in readiness to combat it.

When the patient is out of coma the diet is reestablished and balanced with insulin. The ketogenic factors in the diet must be reduced with a view of preventing acidosis. The patient is told frankly of his recent peril and warned against recurrence.

Carbuncles and boils are treated surgically. Wide crucial or grid iron incisions are made and the edges of the wound dissected up so as to allow adequate drainage. Continuous wet dressings of boric acid or other mild antiseptics are used. The ketogenic factors in the diet are reduced and if needed the dose of insulin is increased to safeguard against acidosis.

Gangrene of extremities demands early and radical amputation and the same protective attention in the diet and insulin to prevent acidosis.

Arterio-sclerosis is a frequently associated disease for which much can be done. The diet is altered so as to predominate in alkaline-ash and neutral-ash foods. The protein is lowered to the minimum. Rest and passive exercise are insisted upon. Following a program of this sort the

blood pressure is often reduced from forty to fifty millimeters. The mental attitude of the patient is improved and I believe cerebral hemorrhage and gangrene is often prevented.

Thyroid disease, acute abdominal conditions, such as appendicitis and gall bladder disease, which demand surgical intervention can be operated upon with gratifying results, if support is given and maintained with insulin and proper. diet to prevent acidosis.

Neuritis and pruritus clear up after the patient is desugarized and require no especial treatment except the control of the diabetes.

Pregnancy can be allowed. The tolerance for carbohydrate increases during pregnancy, but as soon as delivery it is lost and one should anticipate this loss of tolerance and give support with insulin if needed.

Certain eye conditions present themselves for treatment: the soft eye ball due to dehydration, arterio-sclerotic changes in the retina and cataract. The soft eye ball is not serious and is corrected when the patient is desugarized and on a properly balanced diet. Impaired vision due to arterio-sclerotic changes in the retinal vessels may be benefited by refraction; but this is not advised until the patient is desugarized and on a properly balanced diet for sometime. Cataract, of course, requires surgical intervention by a competent eye specialist.

In conclusion I wish to emphasize:

1. The necessity for thorough education of the patient.
2. The use of high carbohydrate and low fat diets approaching that of a normal individual and stilting of it with large doses of insulin.
3. The balance of alkaline-ash foods with acid-ash foods.
4. The selection of foods with the necessary mineral and vitamin content.
5. The use of insulin in large doses given intravenously and repeated at one half or one hour intervals in treating acidosis with coma.
6. That there should be no fear of giving insulin intravenously as long as acetone and sugar appear in the urine when treating coma.

DISCUSSION

Dr. Paul H. Ringer (Asheville): I have been very much interested in this paper of Dr. Carr's because it brings up a question that almost every practitioner of medicine is confronted with.

I think there has been an idea among those not especially concerned with diabetes that it was a tremendously complicated thing to treat and that one had to enter it as one enters the marriage state, soberly, discreetly, and in the fear of God. As a matter of fact, it is not such a complicated thing. There are a few definite rules that one must know, a few definite indications that one must meet.

First and foremost it seems to me is the importance of impressing the patient with the fact that after a diagnosis of diabetes is made his or her life is changed. There must be a very definite alteration of the

normal mode of life in order that the prime indications for the control of the glycosuria may be met.

I have no discussion to make with regard to the body of Dr. Carr's paper, nothing but complimentary thoughts about it.

I have been struck on two or three occasions with the tremendous upheaval with the body metabolism that happens when in the course of an uncomplicated diabetes there supervenes an acute infection of whatever kind. The metabolic applecart is absolutely bowled over and all the preconceived rules about the particular treatment of diabetes do not hold good.

I remember particularly within the year a patient of mine with a perfectly well-controlled diabetes who developed a bronchopneumonia. This individual was getting along capitally on thirty-seven units of insulin a day and before we were able to control the glycosuria we had, in two or three days, to mount up to ninety units of insulin a day. With the subsidence of pneumonia and with the disappearance of the acute infection we were gradually able to lower the total insulin administration until at present he is getting on very well on about sixty-five units. But we never since then—and that was last July—have been able to get back to the previous low level. (Applause)

Chairman Whitaker: Is there any further discussion of Dr. Carr's paper?

Dr. C. A. Street (Winston-Salem): Mr. Chairman, one thing I should like to mention is that the death rate in North Carolina from diabetes in the year 1914, that is 18 years ago, the first year that we had reliable statistics on the death rate in North Carolina, was 5.1 per one hundred thousand. It has increased steadily until in 1932 the death rate was 10.2 per one hundred thousand. In 1914 there were one hundred and twenty-one deaths from diabetes and in 1932 there were three hundred and twenty-nine deaths. Most of these deaths were due to coma. Otherwise they should not have been called diabetic deaths.

It strikes me that there isn't much to boast about in the use of insulin in North Carolina. I am glad to see that the Doctor believes in high carbohydrate and low fat diets and in giving plenty of insulin.

If he uses that sort of diet he will have comparatively little trouble with coma. It is usually the patient who is untreated or who has a high fat diet that develops coma. If the patient on a high fat diet develops an acute infection he is much more likely to go into coma than a patient on a high carbohydrate diet. Not only that but the high fat diet undoubtedly tends to produce arterio-sclerosis.

I should hesitate to give quite the size doses that he gives in cases of coma. I have been frightened once or twice by giving extremely large doses. However I do think that the average doctor gives entirely too little insulin both in the treatment of the case and when coma develops.

Of course, if you have them in a hospital where the urine and blood sugar can be examined at frequent intervals, and where one can give glucose in case of an overdose, larger doses may be given safely. Diabetic coma is just as much of an emergency as an acute appendix and every coma case should be in a hospital. With proper treatment, more cases of coma will probably recover than of acute appendicitis.

CHAIRMAN WHITAKER: Is there any further discussion of Dr. Carr's paper?

DR. WM. H. SMITH (Goldsboro): Mr. Chairman, the point that Dr. Street made about the death rate in North Carolina increasing from 5.1 to 10.2 between 1914 and 1932 probably means this: that the physicians in North Carolina, the rank and file of the physicians, consider diabetes a bugaboo as Dr. Ringer said.

I talk to my diabetic patients like this: "You have got to maintain your strength and your weight. It is desirable that you be a little bit under normal weight. In order to do that you have to take a certain amount of food. (We calculate that according to the weight, or you can calculate it according to the body surface, around ten to fourteen calories to the pound, or as Dr. Carr mentioned thirty to thirty-five calories per kilogram.) That is the basis for maintaining your health. In order to do that you have got to have a proper ratio of the food elements, the protein, the fat, and the carbohydrates."

As Dr. Carr says, we give one gram of protein per kilo and then divide the other in the ratio of two to one for fats and carbohydrates.

After you make the patient understand that he must have a certain amount of food per day in order to keep going to maintain his weight, then if sugar shows in his urine or his blood sugar is high, there is just one thing to do. That means that he cannot take care of that much carbohydrate and you have to enable him to take care of it by giving him insulin.

Probably the fact that so many physicians in North Carolina are not able to do blood sugars has kept them from trying to treat along scientific or intelligent lines. Blood sugars are very valuable in determining at first the amount of insulin to be given in the case. After that, we make the case probably a little bit more plain, but that is not necessary. You take a patient and let him examine his urine two hours after his meals. Then he can go by the color of his reaction as to the amount of sugar he has in his urine, and he can gauge his dose of insulin entirely by that.

I think if the physicians in North Carolina would remember that the value of blood sugars is only a help in determining the amount of insulin to be given to a certain patient, they could probably approach the subject of the treatment of diabetes a little more unafraid.

I differ a little bit with Dr. Carr about the treatment of diabetic coma. Dr. Joslin has made a point in his talks about diabetes that I think is well taken. He says, "Why give more glucose when your patient is run-

ning a blood sugar of three or four hundred or five or six hundred milligrams? He has an over-abundance of glucose in his body. That will burn up those acid bodies in there and why burden him with any more glucose? What you want to do is to reduce that amount."

CHAIRMAN WHITAKER: Is there any other discussion? If not, I will ask Dr. Carr to close the discussion on this paper.

DR. CARR: Mr. Chairman, I should like to say a word about the death rate. Although the death rate has apparently increased in this state, and according to a recent article in the *American Medical Journal* it has also increased in other states, this is probably due to failure to educate patients thoroughly, and failure to recognize acidosis in diabetes due to sodium chloride retention as well as acetone bodies.

I would like to say that in last week's Medical Journal, T. L. Althausen, of San Francisco, wrote an article in which he cited some experiments on human individuals and animals, showing that a liver rich in glycogen was able to detoxicate both endogenous and exogenous toxin much better than one poor in glycogen.

For this reason and for prevention of acidosis, I think we will do well to follow a high carbohydrate diet in the treatment of diabetes.

Dr. Smith questions the use of glucose in treatment of acidosis and coma of diabetes. I have always felt it improved liver functions, increased the combustion of acetone bodies and when the urine begins to be freed of sugar and acetone it acts as a safeguard against insulin shock as well as promotes dieurisis and excretion of chlorides.

CHAIRMAN WHITAKER: The next paper on the program is, "Parasitic Infection: Incidence in the Piedmont Carolinas," by Dr. D. Heath Nisbet, of Charlotte. (Applause)

PARASITIC INFECTION: INCIDENCE IN THE PIEDMONT CAROLINAS

By DR. D. HEATH NISBET, F.A.C.P., Charlotte, N. C.

Our dependence upon the interpretation of laboratory findings is at times too great and in some cases we have made excessive use of laboratory work. However, it is my opinion that we too frequently leave off one examination which would and does give us valuable information, namely, examination of the feces for protozoa and parasites. Only rarely and in advanced cases can we diagnose hookworm infestation by looking at the patient but we can always get at the basic condition by a simple examination of the feces. We often find an infestation which, though harmless in many cases, is definitely pathogenic in others. Willner in 1927 reviewed the literature in regard to the percentage of infestation with parasites and worms in various countries. The percentages in the United States varied from 2.3% to 15.4%; in Germany it was 6%; in England 1.5%; China 10% in foreigners, 15% in natives; Brazil 22.5% in children.

It is my purpose to review briefly the findings in 1,013 cases seen in the past six years, to briefly review the literature and to briefly discuss treatment.

Amoeba-Histolytica was the most frequent finding, there being twenty-six cases or 2.6%; dysentery with the presence of blood and mucus was the presenting symptom in twenty-four cases; there was one case of liver abscess in this series. "Male, age 34, complained of ill health for several months and had lost twenty pounds in weight. Bowels had always been constipated. He had had an acute epigastric pain for two weeks and had vomited on the day of admission. Examination showed a board-like rigidity of the upper abdomen. The white count was 32,000 with 77% polys. No amoebae in the stools. At operation, a large liver abscess was found in the right lobe and this drained a chocolate colored fluid for three months before the wound healed. Six months later he had some diarrhea and amoebae were found in the stools. This was controlled by emetin."

I have had uniformly good results in the treatment of amoebic dysentery with emetin hydrochloride subcutaneously, alcresta tablets and bismuth subnitrate by mouth in the acute stage. It always works well in the acute dysentery and in the exacerbation of the chronic. The treatment must be continued for several months to prevent recurrence.

Leake has reviewed the various treatments recommended for amoebic dysentery. He feels that the ipecac alkaloids, particularly emetin, are so toxic that there is little hope of finding satisfactory treatment here. He does say that emetin is useful in amoebic hepatitis. The kurchi alkaloids are not amoebicidal and therefore not useful. Rivanol he found ineffective. The resorcinols are too toxic. The oxyquinolines give promise especially vioform which is specifically amoebicidal, is rapidly eliminated and apparently nontoxic in large doses. He thinks yatren of doubtful value and says that stovarsol is too toxic in effective doses. Carbarsone, an arsenic compound, has a low toxicity and is very effective in amoebic dysentery but must be used cautiously on account of its effect on the optic tract. I have used carbarsone in one case with good results.

Strongyloid Intestinalis—Strongyloid infestation is found in both tropical and subtropical countries. It follows the general distribution of hook-worms. It gains access to the body through the medium of contaminated food or water or actively through the skin.

The parasitic adults are asexual and deposit eggs in the intestinal lumen of the hosts or in galleries in the intestinal mucosa, made by the females and developed into (b) rhabditiform embryos 200-240 microms long by 12 microms broad, growing to length of 450 to 600 microms. These develop in two or three days into (c) free living, sexually distinct adults, (d) free living rhabditiform embryos (e) and filiariform larvae, which are the infecting form which enter man through the mouth and skin, and reach the duodenum and upper jejunum and develop directly into the asexual females-parthenogenetic.

This worm under certain conditions is pathogenic. Powell found it in 75% of cases of secondary anaemia in India. Darling found it present in 3.3% of 45,000 stools, and concluded it was not the causative factor in diarrhea. Ophuls reports a fatal case of strongyloidosis in a man who had recurrent diarrheal attacks with marked inflammation of the colon. Gage reports a case where strongyloids were found in the sputum of a patient dying of pneumonia. Autopsy showed them present in the lymph vessels under the muscle layer in the vesicular tubes of the lung and free in the air vesicles. He quotes Teissier who found larvae in the circulating blood. Levin discusses a case of diarrhea of ten years' duration where no other cause was found. Strong transmitted the infection to monkeys by feeding infected human excreta. Sandground showed by animal experiments that there is a definite relation between a heavy infestation of strongyloids in the intestines and diarrhea. He further reports three types of cases—1. Heavy infestation associated with a chronic diarrhea—a rare type; 2. Medium or mild infestation with periodic or mild diarrhea of short duration but more frequent than number 1; 3. Mild, medium or heavy infestation with constipation. This is the most common type.

When diarrhea is present, it is usually chronic and suggestive of amoebic dysentery. More stools are passed early in the morning. There is no pain but the desire is sudden and urgent and may amount to incontinence. Blood may be present. Blood examination shows a mild anaemia with an eosinophile count which may be as high as fifty present.

In this series fourteen cases were found. All complained of disturbance of the gastro-intestinal tract. Nine had chronic constipation while five had intermittent attacks of constipation and diarrhea. Eosinophilia ranged from two to thirteen per cent. There was no blood in the stools. Amobae Histolytica were present in one case and responded to emetin treatment but this did not affect the strongyloids. In the second case a patient with tarhal jaundice of the obstructive type showed the larvae in the stool and in the bile obtained through duodenal drainage. The question arose as to whether the strongyloids could be the cause of the obstructive jaundice. Such a condition is possible but as they are usually found in the duodenum and as the gall bladder has not been explored, this finding is reported as an interesting observation.

Treatment of this condition has not been satisfactory. I used irrigations with weak mercurochrome solutions plus enteric coated mercurochrome tablets by mouth and was able to get temporary results only. Other drugs tried have been thymol, chenopodium, carbon tetrachloride, kerosene irrigations, glycerine, sulphur, castor oil, gentian violet, and hexylresorcinol. No definite results have been obtained in treatment of this condition as far as can be determined from the literature. Presence of this worm is usually of little importance except in rare cases.

Hookworm was found in only eleven cases or one and one-tenth per cent. In a recent study Whitaker, in eastern North Carolina, found 347

cases of hook-worm out of 1,650 cases studied. There were a number of children in his series, while ours were all adults. This finding indicates that the hook-worm is being rapidly eradicated in this section and that this type of infection with its devastating effects on the health of the South, is passing away. All of these cases complained of some gastro-intestinal symptoms. The treatments used were thymol and magnesium sulphate and carbon tetrachloride.

Giardia (Lamblia)—There is dispute as to the pathogenicity of this protozoan. Many writers say that it is not pathogenic and that the diarrheal condition is due to some other cause and that the finding of the cysts naturally follows as they are swept rapidly through the intestinal tract. Whitaker reports four cases relieved of persistent symptoms by intravenous injection of neoarsphenamine and trans-duodenal lavage with a saturated solution of magnesium sulphate. Boros discusses a case which simulated duodenal ulcer and had an intermittent watery diarrhea, cured by five injections of salvarsan. Lyon and Swalm from the study of 3,200 cases concluded that these parasites, by their localization in the duodenum and the jejunum produced a constant irritation and catarrh and possibly an inflammatory edema. They think them definitely pathogenic and often clinically associated with diseases of the gall bladder, bile ducts and duodenum. McClellan found Giardia a definite factor in many gastro-intestinal symptoms in children. His treatment consisted of bismuth salicylate and treparson. Finley reports a case of pellagra with Giardia infection with relief of all symptoms by salvarsan. Miller reported twenty-three cases of diarrhea in children and found no other possible explanation. Fantham and Porter in a study of 1305 cases found 187 cases of Giardia associated with chronic diarrhea. In their experiments on rabbits, they found the intestinal epithelium eroded and distorted by the direct suctorial action of the Giardia. Tao reviews 694 cases in North China in which he thinks the Giardia is not the causative factor. He gives a very complete review of the literature.

Zahorsky in studies on children found a disturbance in the absorptive power of the intestines. He got results by treating with stovarsol.

Tice says the diarrhea has a tendency to remit spontaneously in most instances. Treatments used were thymol, betanophthol, bismuth, salicylate, methylene blue, male fern, calomel and castor oil.

McClendon in a study of twenty-two cases in children showed Giardia were a definite factor in many symptoms referable to the gastro-intestinal tract.

Keyes reports many cases of so-called nervous indigestion where diminution of Giardia infection cures the patient.

Stitt says "This parasite is generally considered as of little importance, but when in great numbers in the caecum and appendix, they may give rise to symptoms resembling appendicitis and as they are responsible for a chronic and intractable diarrhea associated with a mental and physical

depression, this is undoubtedly an affection only minor in importance to amoebic infection."

It seems to me that the literature is overwhelmingly in favor of the pathogenic nature of Giardia infestation especially where there is diarrhea or complaint of an intestinal nature. In this study we found eight cases. In one of these there was an intractable diarrhea of a year's duration which yielded to no form of treatment but refused intravenous therapy.

One case had a chronic colitis with chronic constipation. The other six have shown recurrent attacks of diarrhea and constipation. From this study we can say that this protozoan is pathogenic in most cases.

Monilia Psilosis—Several years ago we had three cases of diarrhea which did not respond to any of the usual treatments. Cultures were made and we isolated the organism Monilia Psilosis described by Ashford as one of the contributory causes of sprue. It occurred to us that a study of this organism would be of interest. In association with Smith and Barret 193 stool specimens from 150 patients were cultured and studied. We were much surprised to find that specimens from fifty patients were positive for monilia. The organism was identified by cultural characteristics and by microscopical examination, but no sugar or agglutination tests were made. Several of the specimens were sent to Dr. Ashford in Porto Rico and identified by him as Monilia Psilosis.

Of these fifty cases, twenty-five had constipation of long duration, eight had a chronic diarrhea, eight had intermittent attacks of diarrhea followed by constipation and eight had normal habits. Therefore, in sixteen cases, sprue might have been suspected at some time in their course as there was diarrhea plus monilia plus a pathological colon.

Treatment of these cases of sprue have been varied. Lowe and Cook report three cures by blood transfusion. Bloomfield and Wycoff reported cures after three months on a liver diet. Ashford—many cures on a low carbohydrate diet with or without vaccines from monilia psilosis. Scott of England and many others effected cures by a milk diet, calcium lactate and parathyroid. Lambert, a physician, cured himself by taking large doses of hydrochloric acid and pancreatin. In two of our proved cases, one responded to the low carbohydrate diet and pancreatin, the other to liver extract. In both, however, the organism still remains and we cannot say that they are definitely cured. We conclude that monilia psilosis is a contributory factor in sprue but that it may be present without giving any symptoms.

CONCLUSIONS

This work represents a study of 1,382 stools from 1,013 patients.

Amoebae histolytica were present in twenty-six cases or 2.6%.

Strongyloid intestinalis were found in fourteen cases or 1.4%.

Hook-worm was present in eleven cases or 1.1%.

Giardia lamblia was present in seven cases or 0.7%.

Other organisms as the dwarf and beef tape-worm, pin-worm, dibothriocephalus latus in seven cases or 0.7%.

This gives a total infestation of 6.5%.

The percentage of infection in the monilia in the special study was 33% but is not included in the general percentages.

We feel from this study that while the strongyloid is not always of a pathogenic nature that it may cause definite intestinal symptoms.

The giardia are definitely pathogenic in most instances.

That amoebae histolytica infection can be best cured by persistent treatment with emetin and carbarsone.

That hook-worm infestation is being eradicated in this section.

That the presence of monilia is a contributory factor in the causation of sprue.

DISCUSSION

Dr. Lee (Kinston): I should like to ask what Dr. Nisbet's experience has been on the incidence of re-occurrence of hookworm.

I have had cases that on repeated examination showed negative but as time went on they would return, and over a period of two or three years I would eventually find the hookworm present again, and I doubt very seriously whether as many cures are being accomplished as we think there are.

Dr. C. W. Durham (Greensboro): I should like to ask Dr. Nisbet what results he has had with chrystoid in regard to hookworm. I know the Sharpe & Dohme people have put that out and said it was very definite in regard to a specific hookworm, but I have tried it at different times and every time I examined a stool I have found that the eggs of the hookworm were still present. If he has anything that would beat that, I would like to get hold of it.

Dr. G. C. Dale (Goldsboro): Mr. Chairman, it has been called to the attention of several of us by C. F. Strosnider, who has done a great deal of work in hookworm infection in eastern North Carolina for the Rockefeller Foundation, that we failed to find the hookworm ova in lots of cases for the reason that they are hung up, so to speak, in the duodenum, in the upper intestinal tract, by clumps of mucus. He has suggested in these cases where we aren't sure that we have it or we are unable to locate the organism that we administer some alkali—he prefers sodium bicarbonate—for a few doses, prior to the stool examination, and then we are able to discover the ovum.

Chairman Whitaker: If there is no further discussion I will ask Dr. Nisbet to close.

Dr. Nisbet: I have had no experience with the use of chrystoid in the treatment of hookworm.

As to the recurrence of these cases, these examinations were made mostly on referred cases. Many of them did not return so I was not able to check them up as closely as I might have. I did not feel that the hook-

worm infestation was related to the disease for which they sought treatment.

The failure to find ova on examination of course brings up the question as to how often we should make these examinations. We certainly should make five or six examinations, using the very fresh specimens, if possible.

The main object of this paper is to emphasize the necessity of examining the feces in all cases and evaluating the findings. Valuable information can often be obtained.

I haven't had a great deal of experience in the treatment of hookworm, as you will see from the fact that we have only seen eleven cases in the last six years. (Applause)

CHAIRMAN WHITAKER: Before we go on to the next paper I want to say that I have just seen Professor McCrae come into the hall. We are delighted and honored to have Dr. McCrae with us and hope he will give us the benefit of some discussion on these papers.

The next paper on the program will be, "My Experience in the Treatment of Undulant Fever," by Dr. C. F. Strosnider, of Goldsboro.

DR. STROSNIDER: Mr. Chairman, Ladies and Gentlemen: In presenting this subject, I am asking for your experience. I need it. And when you diagnose a case of undulant fever, unless you are more fortunate than myself, you will likewise need experience.

MY EXPERIENCE IN THE TREATMENT OF UNDULANT FEVER

By DR. C. F. STROSNIDER, Goldsboro, N. C.

Two years ago I read a paper before this section on the subject of "Undulant Fever—A Medical, Economical and Public Health Problem," and when I arrived at the paragraph on the treatment of the disease, I made the following statement, "—The treatment is supportive and symptomatic—no specific method of treatment has been approved." This was unsatisfactory to myself as well as to others as may be gathered from the discussion of my paper by Dr. William Allen of Charlotte, when he said, "You cannot guess within a year how long they will be sick—the patient gets along just as well without a doctor as with one. I have known two people with malta fever just to fire the doctor and have him come back in two months to see how they were getting along, instead of the next day." With patients confined to their bed and asking the attending physician, "How long will this disease last?" "When can I resume my work?" We are put on the spot, as it were, to get results promptly.

This brings us to the subject of this paper.

Treatment: When we consult our textbooks on the subject of undulant fever as well as the special articles written on the subject of undulant fever we are confronted with numerous drugs recommended for the treatment of this disease—in most instances the author emphasizes one or

more drugs that have proven beneficial in the treatment of undulant fever. This within itself puts the attending physician in a quandary when it comes to selecting the treatment best suited to his patient when considered from the following viewpoints:

A—Economic B—Medicinal C—Specific Vaccine?

Economic: Undulant fever is no respecter of persons—hence our dilemma when we have a poor patient (and most of our patients are poor these days) infected with this disease. We are not in a position at the present time to say just how long this disease will continue with any given case. Ten months was required to get the first negative report in one of my cases, the first report on same being negative two weeks prior to the first positive agglutination 1:20. One of my chronic cases being of eight years duration with two years of treatment—both of these cases being described more in detail later on. At best we can always expect to have from 30 to 60 days of partial to complete disability in each case diagnosed.

We are confronted with the disease in both the acute and the chronic state. Therefore we will consider first the treatment in the acute stage:

In the acute stage we have general aching, with temperature ranging from 100 to 103.4, the same being accompanied with several chills and sweats daily. There is anorexia, insomnia and digestive disturbances which after a period of from 30 to 90 days have a pronounced weakening or exhausting effect upon the patient.

Dietetic: During the acute state the patient should be given a balanced diet in as concentrated form as possible—the patient needs a supplemental digestant following each nourishment to avoid gaseous distension and constipation, both of which have proven to be quite annoying to my patients.

Medicinal: For the insomnia I find sodium amytal in six grain doses at bedtime to be soothing and restful. For the severe general or local aching, such as headache or the various neuralgias or arthralgias with or without temperature—amidopyrine has met these conditions favorably in most cases. The profuse sweating has been controlled by the use of 1/100 grain of atropine sulphate at bedtime as needed. The constipation is reduced to a minimum by the use of two drams of milk of magnesia (P. D. & Co.) after dinner and supper daily, the dose being increased or diminished as per the requirement of the individual patient.

Vaccine: This will be given in detail later (in article).

The Chronic Stage: After the disease has passed the 90 day duration we can consider the patient as being in the chronic stage, when we can prepare our patient for a tug of war for a period of months or years, depending upon the co-operation of doctor and patient, and the enthusiasm of the doctor regarding the outcome of the treatment is paramount in this as well as all other medical procedures for the cure of disease. I am now treating one patient whom I know has had the disease for the past

eight years. A second case whom I know to have had the disease for the past ten years and who is quite sick at the present time in another city with an acute exacerbation of the disease. Let us not be deceived, undulant fever, in the acute or chronic stage, can and does present symptoms and signs and findings that will mislead the most astute practitioner. As an example, the writer treated three of his patients for a persisting pyelitis (catheterized specimens being used from the female patients)—showing a 3-plus pus over a period of weeks (regardless of the treatment used) together with marked tenderness over either renal region upon palpation.

Both the acute and chronic stage of undulant fever are frequently mistaken for other diseases and treated for a period of months without benefit. In the past I have treated undulant fever for the following diseases in the order mentioned: A—malarial fever; B—paratyphoid fever—influenza; C—pulmonary tuberculosis; D—pyelitis; E—septic infection; F—fever of undetermined origin. These errors would explain the numerous drugs used in the treatment of undulant fever by many of the authors of medical textbooks. Having been one who has erred in both the diagnosis and the treatment of this disease, I am anxious to find the specific for the exasperating condition.

Vaccine Treatment: Parke Davis & Company advised me in February 1931 that they had brucelli immugen which was being used experimentally. Being in that state of mind to try anything with a ray of hope, after all remedies have failed to benefit my patient, and seeing the patient wasting away in weight, strength and fighting spirit, both patient and doctor readily embraced this new suggestion and the experiment was on with a chronic case of eight years' duration. Before treatment began in January 1931, her agglutination test was complete in 1:160 and partial in 1:320. The immugen was begun on February 23, 1931, and on April 15, 1931, the agglutination test was complete in 1:80 and partial in 1:160. The patient had gained 4½ pounds in weight, was doing her own work for the first time in eight years and in appearance and movement was a different woman. I gave her the immugen daily at the beginning and added one minum to the dose as the reaction would permit—she having both local and general reaction daily. Local reaction consisted of redness over an area the size of a half silver dollar and the general reaction consisted of aching (headache) and temperature from 99-100 degrees after each dose. It took me three months to get her to take 10 minums without reaction and I never carried her dosage above ten minums of the immugen. As soon as I get the patient to from 10 to 15 minums dosage, I continue the treatment at the rate of three doses per week for 90 days, then omit for one month followed by a blood test, which is followed by further treatment if either symptoms or a positive agglutination of any degree is found.

Experience has taught me that symptoms such as general aching, temperature from 99-100 degrees with chilly sensations several times per

day, digestive disturbances, the loss of weight and strength develop, even though the agglutination test is negative, following such symptoms after 30 days the agglutination test again returns to a 1:20. Such has been my experience with two patients in my practice during the past year. The findings being negative for all other conditions, I began with brucelli immugen treatment and both patients' temperature returned to normal, other symptoms disappeared and the patients rapidly regained their normal weight and strength. After 90 days vaccine treatment one case gave a negative agglutination test—after 90 days she began to lose ground with the return of symptoms as above stated and in 14 days from the time her symptoms returned a blood test gave an agglutination of 1:20. For a third time I gave her a ninety day brucelli immugen treatment with a third return to normal weight and strength and after six weeks her blood agglutination test was negative. These cases have demonstrated to me that a blood agglutination test of 1:20 is sufficient grounds for the doctor to begin treatment with the brucelli immugen and keep it up until the agglutination test is negative for at least one year. Another chronic case has been following a similar course as the one just cited with the exception that her generative organs and both legs from her hips down are aching continuously, the same being accompanied with a temperature of from 99-100 degrees, chilly sensations and light sweats with a negative blood agglutination test on January 28, 1933. However after three weeks of brucelli immugen treatment her symptoms and signs have once more disappeared. She had been symptom-free for a period of six months. What will be the final result in this and other cases above cited? I DO NOT KNOW.

Example of an acute case of undulant fever diagnosed early: A young white man, married, age about 33 years, was taken acutely ill in August 1931 with general aching, several chills daily, the same being accompanied by temperature ranging from 101 to 103 degrees and with a constant severe headache for two weeks, which responded to none of the usual analgesic drugs. These acute symptoms persisted for two weeks without any let-up. The first physician to see him diagnosed his condition as that of influenza, but his not responding to treatment and no complications being found, the diagnosis was switched to malaria fever, which likewise did not respond to treatment and then the patient and his friends switched the diagnosis to possible tuberculosis. At this time the attending physician went on his vacation and I was called in to take charge of the case. The patient had then been feeling bad for about three weeks. In taking the patient's history, I questioned him closely about the use of milk and milk products. He stated that he did not use milk, but that he did use liberal amounts of country butter. With this history, I mailed the first specimen of blood requesting that a widal for typhoid fever—paratyphoid fever, lues and undulant fever agglutination tests be made. His blood smear for malaria was negative. His sputum was negative to tuberculosis

and Vincent's angina. In a few days I received a report from the State Laboratory of Hygiene advising that the blood was negative for all the diseases listed on my specimen of blood. After five more days I mailed a second specimen of blood and on Sept. 5, 1931, I received a report as follows: 1:20 plus 4, 1:40 plus 3 and 1:80 plus 1. On Sept. 14, 1931, a third specimen of blood was taken and on Sept. 19, 1931, I received a report reading as follows: 1:320 plus 4—1:640 plus 1. The brucelli immugen was begun on Sept. 17, 1931, with three minum dose and rapidly increased to the maximum dosage of one cc. This acted like magic for within a few days his temperature, aching, chills, and sweats left him and his appetite returned and he rapidly regained his weight and strength. He took his vaccine treatments irregularly after getting back to his work and soon discontinued them against my advice, saying: "I am well, why continue the hypodermics?" However, on January 1, 1932, he returned with symptoms when I took a fourth specimen of blood which was reported as follows: 1:20 plus 4, 1:40 plus 4, 1:80 plus 3, 1:160 plus 1 and 1:320 negative. I began giving brucelli immugen on January 5, 1932, and continued the same regularly from January 5, 1932, to May 1, 1932. On the first of June, 1932, I took a specimen of blood and received a report on June 5, 1932, which read as follows: Macroscopic agglutination test considered negative, although there was a partial agglutination of 1:20. Since this report the case has not returned for further observation. He informs me that he has experienced no discomfort since January, 1932. He states that his weight is normal and that he feels good all of the time. This has been a period of 14 months since he had symptoms of the disease. What will be the outcome of this case? I DO NOT KNOW.

Time may prove that brucelli immugen is not all that we hope for it—a cure for undulant fever—but in my experience it is the only treatment that has successfully benefited my patients suffering with this devitalizing disease.

DISCUSSION

Chairman Whitaker: The discussion on Dr. Strosnider's paper will be opened by Dr. William B. Dewar of Raleigh.

Dr. W. B. Dewar (Raleigh): Mr. Chairman and Gentlemen of the Section: I think that Dr. Strosnider is to be congratulated on bringing this subject before the Medical Section of this Society. In 1931 at Durham he discussed the etiology, the diagnosis, and at that time I think reported starting of the treatment.

I was very much interested in the disease. I had not thought very much of it up until that time. Since them I have had three cases which I have treated with brucelli immugen by Parke Davis, in connection with neoarsphenamine.

Wainwright in Baltimore has reported a case of undulant fever which responded to no treatment over a period of ten years and in which a remission which lasted for twelve months occurred after the use of six grams of neoarsphenamine in broken doses. The dose that he advises is four to six-tenths of a gram originally and then six-tenths to nine grams at weekly intervals.

In the three cases that I have treated here I have given between four and six grams in broken doses, using the brucelli immugen of Parke Davis in between the treatment.

I have taken the precaution of trying to prevent an acute hepatitis from the neoarsphenamine by giving fifty to one hundred grams of glucose before using the arsenic preparation.

The use of acriflavine and mercurochrome intravenously has been discarded in the treatment of this disease.

We don't know whether or not brucelli immugen and neoarsphenamine are going to be a specific in the treatment of undulant fever. Our experience has certainly been too limited for us to know that. (Applause)

Chairman Whitaker: Is there any further discussion of Dr. Strosnider's paper?

Dr. D. T. Smith (Duke): I should like to say just a word in regard to the bacteriological side of this disease. I think Dr. Strosnider is to be congratulated on the excellence of his work, and particularly for his careful clinical study of this immugen.

The first thing is that not all cases have positive agglutination. There are many in the literature and we have one which Dr. Daniel sent us from the Orphanage where there were repeated blood cultures, but never a positive agglutination.

The second point is that I think perhaps he is very wise to grade his dosage and continue his treatment based on the clinical improvement rather than on the fluctuations of the agglutinants, because since we know a patient may be acutely ill with no agglutinants, and since we know a patient may be entirely recovered and still have agglutinants, just as a patient recovered from typhoid still has his agglutinants, it might be safer to follow the course of the case purely on the clinical symptoms rather than tie it up to the fluctuations in the agglutinants.

Dr. Strosnider: Mr. Chairman and Gentlemen: I purposely avoided using drugs other than this immugen in order that we might see whether or not we would get results. When you pick up your textbook and look up the treatment of undulant fever you will find numerous treatments used for the disease which I have mentioned. Therefore, I used brucelli immugen only, and along the line of symptomology, in order that we could tell

whether or not we were going to get worthwhile results from this product. My experience is that brucelli immugen is the only thing I have found so far that will give our patients the desired relief. (Applause)

HYPERTENSIVE CARDIO-VASCULAR DISEASE

By W. Bernard Kinlaw, M.D., F.A.C.P.,
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We can safely consider that there are at least 70,000 deaths each year in the United States due to hypertensive heart disease. The proportion in the South is relatively greater than in the North, due to the infrequency of rheumatic fever in the South. In the New England states, rheumatic heart disease is more common than the hypertensive form but in this section the reverse is true. The subject is a big one and in this short time I hope only to touch on some of the more important points in the diagnosis and treatment, realizing that all of you have your pet drugs and methods that give you the best results. This paper is based on 225 cases of hypertensive heart disease. These were found out of a total number of 400 cases that I have seen and on whom I have made electrocardiograms at the Park View Hospital because of the diagnosis of some form of organic heart disease. There were 120 cases that showed a preponderance of the left ventricle, which were thought to be due to hypertensive heart disease. This finding is present in a little more than 50% of the cases but not necessarily in the largest hearts or the highest pressures.

The etiology of this condition is hypertension, the cause of hypertension I do not know. It is a disease of theories. Many factors have been accused: heredity, obesity, mental strain, abnormal internal secretions and others. There is no chemical change found in the blood when the pressure is high, but when lowered by drugs, there is an increase in urea retention and other changes, however, I do not wish to discuss hypertension, but the effects and complications of hypertension on the cardiovascular system, mainly the heart itself.

The condition occurs most often in individuals over 40 years of age, and especially in those between the ages of 40 and 60. It is most often diagnosed as "myocarditis" and "mitral regurgitation," often as "aortic regurgitation" and "cardio-renal disease." The term "myocarditis" is unfortunate as there is rarely any inflammation of the myocardium, according to the work of Aschoff and Taware. The term naturally comes from the thought that there is some foci of infection in the tonsils, sinuses, abscessed teeth, prostate and more commonly than recognized, in the gall-bladder. The term "myocardosis" has been suggested by Parsonnet and Hyman, to designate this degenerative change in the heart muscle.

Approximately 90% of hypertensive heart cases that come to autopsy show coronary sclerosis of varying degrees, with myocardial degeneration and fibrosis in proportion to the amount of sclerosis present. Mitral regurgitation or insufficiency is often diagnosed because approximately 75% of all cases present a systolic murmur at the apex. If loud it will naturally be transmitted to the axilla. These murmurs are nearly always due to the left ventricular dilatation with the consequent stretching of the mitral ring. The murmur then, is a consequence of the beginning failure and not the cause. Damage will be done from this relative insufficiency, however, unless proper treatment allows the dilated ring to get back to its normal size.

These cases are seen by the physician at various stages and for varied reasons. Many cases have no symptoms in the early years of increased blood pressure and may be discovered during an examination for insurance. Some cases are seen because of headaches, dizziness, or discomfort in the neck or chest, especially if much physical work is done. The patient with dizziness may have high blood pressure but often the physician is apt to find that some chronic disease of the eustachian tubes, ears or eyes, will be the cause and relief of that symptom may be easily given. It is unfortunate, but the case most frequently seen is the one that has a beginning, moderate, or marked decompensation. There is no necessity of mentioning the signs or symptoms of decompensation to this audience, however, in the failing hypertensive heart certain symptoms have a greater significance than they would in a younger person. Pain, for instance, or precordial aching, is commonly found in association with dyspnea and palpitation in the younger person with effort syndrome or neurocirculatory asthenia, and is not of so much importance in so far as a bad prognosis is concerned. We know that angina pectoris is a rare finding, in the congestive failure of mitral stenosis, but pain in the patient with the hypertensive heart complicated by sclerosis of the coronary arteries, is a very important symptom. Dyspnea is probably the most common chief complaint and is of varying degrees. If the heart is able to maintain its own coronary circulation better than the systemic or pulmonary circulation, then dyspnea will be the first symptom. If it cannot, then precordial pain or definite symptoms of angina pectoris or coronary sclerosis will be the first symptom.

Asthma, that simulates true bronchial asthma, may be a symptom, with spells lasting from a few minutes to several hours. Some complain of smothering spells at night. It is useful to remember that true bronchial asthma practically never begins after a person has reached the age of forty, and it is wise to consider a strained cardiovascular system as the cause. Obviously the treatment will be different; instead of adrenalin, morphine is the drug of choice for the acute attack, and the removal of 300 cc. of blood from the vein on several occasions has given me very gratifying results. After a period of rest and digitalization, future attacks are rare.

Palpitation, or heart consciousness, is fairly common in patients with hypertension, whether they have developed any heart disease or not. It is naturally noticed more if the patient is aware of the hypertension.

It is important to rule out syphilis and a history of rheumatic fever in all of the cases suspected of any form of heart disease before trying to classify it.

Assuming that the above statements are correct, especially in regard to the frequency, it is also true that the most important points about the conditions are: (1) How can the condition be recognized? (2) How can we estimate the amount of damage done to the heart and judge the amount of rest or work to be prescribed? (3) What line of treatment or advice shall be given these various grades of sick people? It is just as important not to over restrict the activities of some as it is to stop all activity in others. First of all a patient must have hypertrophy or enlargement (the left ventricle) of the heart before we can say definitely that he or she has hypertensive heart disease. The patient at this age often presents a chest that may be somewhat resonant or rounded, and the exact size of the heart, after percussion, is still in doubt. The location of the apex beat is a great help but it is often not palpable, therefore an X-ray film taken at six feet, or a tracing of the heart shadow with the fluoroscope, having the tube six feet from the patient, will give conclusive data in regard to enlargement. (The greater transverse diameter of the heart should be less than half the greatest transverse diameter of the inner wall of the chest.) Percussion should not be omitted. Practice tends to make perfect and frequently an X-ray is not available. We may find enlargement and no elevation of the systolic or diastolic pressures. In this event I think we are justified in considering, in the absence of other forms of heart disease, that we are dealing with a case that in the past has had hypertension that caused hypertrophy and the pressure has dropped back to normal. Readings at several different visits are needed where there is any doubt. Ventricular extra-systoles, which are not considered of any prognostic importance, may be present. Auricular fibrilation may be found in a small percentage of cases but not near as often as in the rheumatic hearts. One sign of great importance when present is gallop rhythm. It is characterized by three sounds instead of the usual two and is heard best in rates about 100 per minute. It sounds very much like the galloping of a horse. The third sound usually comes after the second (protodiastolic). It usually indicates a failing heart and requires absolute bed rest.

While taking the blood pressure in the patient with hypertension, if it is noted that the beats come through at a regular rate but that every other beat is weaker or stronger than the alternating one, the condition is pulsus alternans and is also a definite sign of a failing heart muscle and the prognosis is anything but good. Another helpful sign in cases where there is some doubt in regard to the duration of the hypertension, especially

where the radial arteries are not sclerotic and there are no signs of general or coronary sclerosis, is the appearance of sclerosis of the vessels in the eye grounds.

The electrocardiogram, unfortunately, is not always diagnostic. It will show preponderance of the left ventricle in a little more than 50% of the cases. In making electrocardiograms on 400 cases that were thought to have some form of heart disease, I found left ventricular preponderance due to hypertensive heart disease in 120 cases. 76 were in males and 44 in females. There were 105 cases in this series that we thought had hypertensive heart disease in which there was no preponderance of the left ventricle seen in the tracing. There were 26 of the 120 cases with preponderance that had an inverted T wave in lead one and twelve cases that had both an inverted T1 and T2. This finding means definite coronary sclerosis and myocardial degeneration and the prognosis is approximately 30% worse than if there were no inverted T waves, and we will have to put more restrictions on the mental and physical work of this patient in order to let him continue a comfortable life as long as possible. There were six cases of right bundle branch block (new nomenclature, left) four of which have died. Only three of the 120 cases had auricular fibrilation. It will be seen therefore that the electrocardiogram will not always give the information desired, however, it is helpful in well over half of the cases and it is difficult to tell whether the case at hand comes in the larger or smaller percentage. It will clear up the cause of any irregularity, and often surprises one by showing some sign of bad prognosis in a case that the physician, the family and the patient think is getting along very well. I believe a tracing should be made on all patients over 50 years of age with hypertension before having any major surgical operation. This is especially true of all gall-bladder cases.

We can, in the average case, consider the history, the physical examination, (including X-ray or fluoroscopic study) and the electrocardiogram, worth about 33 1-3% each in the diagnosis and estimation of the cardiac pathology, and ability to do its work.

In discussing a general plan of treatment it should be said in the beginning that this is certainly one condition in which the patient must be treated as much if not more so than the disease. It is understood that in each of the three stages of the condition mentioned below that the etiology of the hypertension will be sought for and will be treated by the method in which you get best results or the method in vogue at the time. It may be that the term "heart disease" must be used to slow some of them down, but if we tell early cases that they have "a heart that is a little enlarged or overworked" we may not be so likely to change a mentally or physically tired individual into one with a cardiac phobia. Most every one now is aware of the fact that digitalis is used to treat heart disease, so this makes it even more important not to use digitalis unless it is actually indicated.

It is estimated that at least three-fourths or more of the digitalis given today is entirely unnecessary, and therefore is a contraindicated poison.

There are three main types or grades of this condition. First we have the patient around forty that comes to your office with the complaint of slight dyspnea on exertion and he is probably heart conscious. You find or probably knew from previous examinations that his pressure is around 170-100. There may be slight questionable enlargement of the heart, that is a little over active, and may or may not have a systolic murmur at the apex. It is very necessary to gain this patient's confidence by an understanding talk and a careful examination, so he will remain under your observation for years to come. If necessary go into his home life and business worries if he does not volunteer the information, because it may be that a leisurely vacation may be in order. A short sleep after his mid-day meal, every day, will certainly be helpful. Have his bad tonsils or abscessed teeth removed and his chronic sinuses treated if necessary, but rule out nephritis first and do not expect amazing results. If he is overweight, get him to slowly reduce to his normal weight. There is no particular article to restrict from the average diet. Blood pressure reducing drugs are not indicated, however the pressure will probably come down a little with the use of sedatives. I favor small doses (½ gr.) of luminal three times daily. A warm tub bath at night helps them to get a better night's rest. Digitalis is not indicated. Go into the gall-bladder history because this is the time that removal may be very helpful, and they will be able to stand the operation after a little rest. Twenty of the above mentioned 120 cases with ventricular preponderance had associated gall-bladder disease. This type of case may gradually go along into the moderate or far advanced case in spite of the best care but there is a fairly good chance of definite and lasting improvement especially if the patient will be one of those to pay his physician to keep him well, and this is done by routine observations.

The next grade is probably a little older and can do very little physical work. He cannot walk in the wind and therefore you will see more of them in the winter. They probably complain of their winter cough. They will likely complain also of a little discomfort under the sternum. In this event it is helpful to determine whether the pain is due to left ventricular fatigue or are the coronary vessels getting sclerotic enough to produce an ischemia of the heart muscle. The electrocardiogram is helpful here, especially since Pardee and Willius have observed recently that a large percentage of cases of angina and arterio-sclerotic heart disease show a "Q" wave in the third lead. This patient's heart is definitely enlarged and his pressure is around the 200 mark or more, and quite a loud systolic murmur is heard at the apex. A very loud murmur may indicate a good heart muscle as well as a dilated ring. There will probably be some moist rales at the bases of his lungs and the liver slightly palpable. He probably finds difficulty in sleeping on just one pillow at night. He probably has

some albumin in his urine secondary to congestion, but it is important to ascertain if he had an actual nephritis. Radical treatment is indicated here to ward off a complete break down. Complete bed rest and sedatives, even morphine if necessary to make them rest. The pressure will gradually drop without pressure reducing drugs such as the nitrites as it has been shown that these drugs actually damage the heart by lowering an adequate aortic pressure, thereby causing the coronary circulation to suffer. They should retain their pressure in the coronaries, reducing it gradually. This patient needs to be digitalized. A restricted soft diet is ordered and mild laxatives as indicated. Coffee and moderate smoking are allowed if they are accustomed to them.

In the third or extreme case we have the complication of congestive heart failure to deal with and must be on the lookout for apoplexy, angina, coronary thrombosis, nephritis and possibly uremia. This patient is in bed at home or in the hospital, usually propped up, a little cyanotic and may have asthma every night. There are rales in his chest and probably some fluid at one or both bases. The fluid should be removed without delay, as it interferes with the ventilation of the lung, increasing the embarrassment to the heart. Their pressure may have dropped from its high level due to a weakened myocardium. If there is much coronary pain, morphine is the drug. The pressure if below the usual level will be lowered more by the use of nitroglycerin, thereby slowing the blood stream and possibly setting the stage for a coronary occlusion. Of course if we are sure we are dealing with a case of true angina pectoris, the nitroglycerin will give great relief as a rule, but one important point to remember is that true angina attacks never last over an hour as a rule and the pain of coronary thrombosis is not relieved by nitroglycerin. The caffein series as caffein, theominal or theamin, will probably dilate the coronaries and give some relief. I think they are valuable drugs.

This patient is really in need of digitalis and he needs the proper dose of a good preparation. It will take 1½ grains of the powdered leaf for each ten pounds of body weight to digitalize him, allowing 1½ grains per day for elimination. Fifteen minims (not drops) of the tincture is the same as 1½ grains of the leaf. The dose should be worked out and given within a period of twenty-four to forty-eight hours. It should be learned if possible whether he has been taking digitalis recently or not and take this into account when estimating the dosage. After he is digitalized he is to be kept on the maintenance dose of 1½ grains daily. I restrict this patient's diet to a glass of milk and two crackers every four hours, giving cracked ice for thirst if necessary. Their nervous tension should be held down with luminal or some allied drug. If there is much ascites some of it should be removed as we want to get this patient comfortable as soon as possible. Of course we have the drastic diuretics like novasurol and salyrgan for the edema and ascites, and I have seen it remove seventy ounces of fluid in one night but I have also seen three

or four cases die suddenly that had been given novasurol with all the required precautions taken. I never gave it without running a blood urea or seeing about the kidneys. Somehow I had rather see the fluid disappear a little more slowly than by the use of these drastic diuretics. Perhaps it lowers the pressure too rapidly and the deaths are undoubtedly of coronary type.

We strive to get this patient back to the condition of the first mentioned type. It is not impossible, and after his compensation is restored he realizes that he has heart trouble and is not neurotic about it either, and he can usually be advised to restrict his activity and live the remainder of his days as a grateful patient to you and without so much worry about depressions and other things that worry most people. All of this discourse on treatment will be obsolete when some of you find the cause and cure of hypertension, because without hypertension there can be no hypertensive cardiovascular disease.

DISCUSSION

Dr. J. M. Northington (Charlotte): Mr. Chairman, Gentlemen of the Section: Dr. Kinlaw has presented this subject to the Section with his usual care as to observation, examination and record, as Dr. McCrae emphasized this morning, and as to the deductions that he drew from his observations.

There are just a few points that I wish to touch on. One, a favorite of mine, is his reference to heart disease and the great mortality from it. I have a fixed idea that what we commonly call heart disease ought in the vast majority of instances not to be classed under diseases at all, but ought to be classed as a wearing-out process. We very frequently see statistics compiled by various agencies which tend to show that the medical profession has been able to reduce the death rate from a number of diseases—diphtheria, typhoid fever, and others; and they argue from that that we should be able to reduce the deaths from heart disease in the same ratio.

It seems to me, in all seriousness, that that is absurd reasoning, inasmuch as we cannot live always we must die of something, and it certainly is obvious that an organ which starts to function such a long time before we come into the world and continues day and night thereafter will eventually wear out. It is part of the general wearing-out process, part of the dying of all things that have life, and I believe that we can get a better concept of the whole subject of heart disease by looking upon it as a wearing-out process.

A natural step from that is to look upon hypertension, not as an evil in itself, but as a response to some demand of the economy, and we can find abundant evidence of the truth of this idea by reducing arbitrarily this high tension, and noting how much worse off the patient usually evidently is.

Sir James MacKenzie said in his own trenchant way that the only reason we didn't kill our patients with hypertension by our attempts to reduce their hypertension was that we could not reduce it; that is, we could not reduce it over any considerable time.

I think that is not entirely true. I don't think he meant us to take it as being entirely true, but we can take a hint from that and go at the matter of the reduction of hypertension after the trial-and-error plan. Fortunately, we don't have to go through a very long period of trying to find out what effects we are going to get.

We can give a patient a pearl of amyl nitrite and gauge whether or not reduction will be beneficial largely by the effect that we get in the response of the patient—whether he has such a severe headache that he would rather bear the ills that he had than fly to those he knows not of, whether he feels much worse after his tension is reduced. And I believe we can readily translate, to all intents and purposes, the results that we get from the rapidly acting amyl nitrite to those remedies that are slower acting, and whose effects are slower in passing off, all the way to erythrol tetranitrate, and maybe further.

Most of us have found that in the case of the vast majority of patients who have very high blood pressure and in whose cases we undertake to attack the condition directly, to reduce the pressure, the patients feel much worse on the days that the tension is not high, and we can readily take a hint from that.

A matter that is closely related to our subject that I should like to call to the attention of this body is a recent book—it came out last year—by Walter Cannon, "The Wisdom of the Body." It deals with the marvelous adjustments the body makes in response to all of the demands that are made upon it, either locally or generally.

I would not be surprised if the sphygmomanometer has done more harm than good. It has done a great deal of good. It has also done a great deal of harm, particularly when we seek to interpret the slight changes from day to day or from week to week and tell a patient, "Your blood pressure was 180 last Thursday but this Thursday it is 175, which proves that the treatment is doing you a marvelous amount of good."

There is a wide variation in blood pressure readings, in a state of health, in so far as we know. There are wide variations even in fifteen-minute periods, and any attempt to interpret slight variations is doomed to failure as to productive results.

I should like to call attention, in the minute that I have left, to another book that is a marvel, a book that has just come out, by Sir Thomas Lewis, on "Diseases of the Heart." It is a small book; it doesn't cost much; and it is written from the experiences of this master clinician in diseases of the heart. I would recommend that you write The MacMillan Company and send $3.50 and get that book. It not only gives all of the good things used at the present time in the treatment if heart disease,

but has a great deal to say in praise in the good old methods of blood letting, Southey's tubes, making incisions in the skin to relieve edema, and leeches for congestion of the liver. (Laughter and applause)

CHAIRMAN WHITAKER: We would like to hear from Dr. McCrae on this subject, please. (Applause)

DR. THOMAS MCCRAE (1929 Spruce Street, Philadelphia): I get up with a good deal of hesitation although there are two or three points I should like to discuss. It may seem captious to bring up the question of terminology but I would like to raise the question as to whether this term "hypertensive cardiac disease," which is a very fashionable designation today, is a wise one, whether it has added anything to our conception of what is going on. I think it is very much better—I take it, Dr. Kinlaw, that in all these cases there is hypertrophy of the heart—to speak of these cases as hypertrophy of the heart with hypertension rather than speak of them as hypertensive heart disease, because I think it gives us a wrong slant on the problem.

There is also a question as to the terms "myocarditis" and "myocardosis." I fail to see that we gain anything from the term "myocardosis." Neither is "myocarditis" a good term in certain instances. It would be much better probably to speak of it as myocardial degeneration, although in some cases there is real myocarditis.

I think those of us who have studied these cases over a good many years have probably felt that there are two very distinct groups of cases that may come under this heading of "hypertensive heart disease," patients with hypertrophy of the heart and with hypertension, and the prognosis is very different in the two groups. I should like to raise the question whether in one group it is not a question probably of a certain element of myocarditis in addition, if we might say, to the changes that follow a hypertension.

As you know, certain of the French school argue that to record blood pressure as we do in this country almost entirely by merely taking systolic and diastolic pressures leaves much to be desired, and I think probably they are correct. As you know, certain of them adopt an entirely different method of estimating pressure. They use the oscillometer and estimate what they call a "mean" pressure. They point out that in these patients with hypertension there may be very great differences. You may have two patients with hypertension but the so-called "mean" pressure is very different in the two and consequently the prognosis is absolutely different.

My own feeling is that there is something in this that we in this country have persistently neglected. If so, it is very important for us to try and recognize the difference.

I think we should recognize enlargment of the heart with hypertension. The paper discussed particularly the cases without any valvular disease. We have got to recognize that there are cases in which there is valvular disease. Do they differ essentially as regards treatment from the other

cases? As regards the management of the heart, I think we would agree generally that they do not differ. If there is syphilis, of course there is an additional problem. The prognosis is worse probably. But essentially I think it is a great mistake to try and put this into a very separate, definite group. I think the problem is a much wider one. Understand, I am not criticizing Dr. Kinlaw's title, or his discussion, because I think he has discussed the management of these cases very properly.

He has brought up one definite point as to how much we should say to the patient and there, I think, comes in the question I mentioned this morning in taking the history; we have got to estimate the psychology of the patient. I agree strongly about the matter of telling the patient of the pressure. I question very much—and I think it is a good thing to think of—what advantage that has been or is. How much advantage has the invention of blood pressure methods been to the patient? I am not speaking about scientific knowledge, about our knowledge of the patient, but how much has the patient benefited? When you put the benefit against the harm, I wonder if they are not just about equal.

With regard to the treatment, I do not think that anyone can add to what has been said. One point is very important with regard to the possible mistake of diagnosing these conditions as "cardiac asthma." For some minds therapy is a "nickel in the slot" business. A diagnosis is made and treatment is given for the name and not for the patient. To some men "asthma" means giving epinephrin. I suppose many of you have seen patients who have cardiac dyspnoea, called "cardiac asthma," pumped full of epinephrin, with a prompt smash in the circulatory system and a hemiplegia. I think that that point is deserving of very thorough emphasis.

May I say, Sir, that I feel that the program of this Section has been excellent and the papers and discussions have been splendid. (Applause)

Chairman Whitaker: If Dr. Munroe is in the hall we would like to hear from him. (Applause)

Dr. J. P. Munroe (Charlotte): I consider this a very important paper, and a very practical one. When he classified his cases into three groups I was reminded of a grouping of such cases made by Christian. He calls them chronic heart disease without valvular lesions and without pericarditis. Christian's grouping is as follows:

1. "Patients, who at any age, complain of great exhaustion following slight exertion. They experience uncomfortable sensation in connection with respiration, are often sensitive to pressure in the region of the heart and the pulse rate is easily accelerated."

Examination reveals a normal heart with perhaps a few extra systoles, usually an adequate cause for the condition can be found in antecedent infections, or in occupational fatigue, with worry and loss of sleep.

These cases can be treated successfully by rest, and reassurance, elimination of worry, regulation of the secretions and regulation of work done,

the use of general tonics. Digitalis, says Christian, should not be used in this class of cases, not that it is harmful but because it is not beneficial.

2. The second group of cases consists of those in which there is hypertrophy, which is often marked. With dilatation there may or may not be a soft systolic murmur which is best heard at apex. This murmur is the result, not the cause of the myocardial insufficiency. Dr. Kinlaw did not dwell upon the treatment of this class of cases, probably because he left us to infer that decompensation, as in other cases of heart failure, indicates the need of digitalis.

"Therapy in this group of patients," says Dr. Christian, "is, as a rule, very satisfactory." Rest and intelligent use of digitalis gives satisfactory results.

Even though fibrillation is not present, rest and digitalis will bring wonderful comfort to a patient suffering with shortness of breath, oedema, pain and congestion of other organs.

3. The third group composes those which are called "true chronic myocarditis" or Dr. Kinlaw suggests the name "cordioses."

There seems to be no doubt of the existence of real pathology and injury to the heart muscle in addition to the hypertrophy. Here again digitalis is our most valuable remedy, although sooner or later the heart may become too diseased to respond satisfactorily to digitalis. Still it is the remedy par excellence for myocardial insufficiency whether of type 2 or 3.

These patients may have high or low blood pressure. If low, then Dr. Kinlaw says one is safe in assuming it was previously high. In either event, digitalis is to be used.

Dr. Kinlaw refers to the value of amyl nitrate and nitroglycerine for angina pectoris. I agree with the doctor that these are sovereign and invaluable remedies for the condition. It should be remembered, however, that anginal pains which are relieved readily by the nitrites, often precede a serious attack of coronary occlusion. When this occurs, morphine rather than nitroglycerine should be given. Some one has named it as a differential point, that a pain that is relieved by amyl nitrite or nitroglycerine is angina pectoris.

Whereas one that requires morphine and perhaps large doses, for relief, is to be regarded as coronary occlusion.

This is sometimes a difficult point to decide and should be decided only by the doctor and not left to the patient's discretion. Sometimes the patient carries nitrite of amyl pearls or nitroglycerine tablets in the vest pocket with permission to take them, ad libitum, for the pain. This is a mistake, the doctor should see the patient often, otherwise the patient is liable to take the nitrites too often and sometimes continue their use when occlusion has occurred, thereby doing himself harm.

When coronary occlusion occurs, morphine is the real remedy for the pain, morphine or pantopon. Nitrite of amyl or nitroglycerine only for

angina pectoris. For cardiac decompensation digitalis should always be given.

CHAIRMAN WHITAKER: The next paper on the program, "The Treatment of Pellagra with Certain Preparations of Liver," will be presented by Dr. J. M. Ruffin, of Durham.

THE TREATMENT OF PELLAGRA WITH CERTAIN PREPARATIONS OF LIVER

By JULIAN M. RUFFIN, M.D., and DAVID T. SMITH, M.D.
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Many observers have noted that there is a close similarity in the symptoms of pellagra and pernicious anemia of the Addisonian type. However, the skin lesions in the one and the characteristic blood picture in the other serve to differentiate them.

Goldberger and Sebrell[1] have shown that daily doses of liver extract No. 343 (N.N.R.) by mouth will prevent and cure black tongue in dogs, a disease believed by some to be the analogue of pellagra. Liver and various extracts of liver, therefore, may be suitable agents for a more accurate analysis of the deficiency which brings about pellagra. The purpose of this report is to record the results of the preliminary experiments on the effect of these substances in pellagra.

METHOD

If not too far advanced, pellagrins usually recover when brought into a hospital and given a well-rounded diet. To study the effect of the liver preparations it was necessary to prepare a standardized diet similar to that which the patient had been taking before the onset of the disease. In reviewing the foods consumed by our patients prior to their development of pellagra we were impressed with the similarity between their diets and the diet which Goldberger and Wheeler[2] used in producing pellagra in convicts in Mississippi. (Chart I). Their home diets consisted of fat salt pork, cow peas, white wheat bread, corn bread, grits, rice, sugar, syrup, and a minimum amount of milk and turnip greens. In addition to the vitamin G (or B_2) deficiency, Goldberger's original diet was lacking in vitamins A, C and D, and in iron, calcium, phosphorus, and complete proteins. A 2,900 calorie diet* was prepared consisting of fat meat, field peas, rice, hominy grits, cane syrup, brown gravy, and lard. To supplement the vitamin,* mineral, and protein deficiencies already mentioned, the patient received daily 90 cc. of cod liver oil, 45 cc. of tomato juice, 6 grams of calcium gluconate, 6 grams of iron and ammonium

*We are indebted to Dr. Wm. A. Perlzweig of the Department of Biochemistry and to Mrs. J. H. Martin of the Department of Dietetics for their cooperation in preparing this diet.
*We wish to thank Mrs. Susan G. Smith of the Department of Physiology, for her assistance in planning the vitamin supplement.

GOLDBERGER DIET

Diet of Volunteers during week ending Sept. 20, 1915.

(Average per man per day.)

Article	Quantity (gm.)	Protein (gm.)	Fat (gm.)	Carbohydrate (gm.)	Minerals (in grams.)								Calories
					Ca.	Mg.	K.	Na.	P.	Cl.	S.	Fe.	
Corn meal	229.4	21.10	4.36	172.97	0.041	0.193	0.489	0.089	0.436	0.335	0.255	0.0021	.....
Grits	29.2	2.74	.20	22.95	.003	.017	.051	.006	.042	.013	.040	.0003	.....
Corn starch	34.5	.00	.00	31.05	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wheat flour	137.2	14.82	1.51	102.63	.027	.025	.158	.082	.126	.102	.243	.0014	.....
Rice	23.3	1.86	.07	18.41	.002	.008	.016	.006	.022	.013	.027	.0002	.....
Cane sirup	34.3	.16	.00	25.93	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cane sugar	58.3	.00	.00	58.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sweet potatoes	92.3	1.66	.65	24.39	.018	.026	.366	.036	.042	.087	.022	.0005	.....
Turnip greens	21.4	.90	.13	1.35	.074	.006	.066	.018	.010	.036	.015	.0004	.....
Cabbage	8.7	.14	.03	.49	.004	.001	.021	.002	.003	.002	.006	.0001	.....
Collards	12.9	.58	.77	.81	.014	.004	.066	.003	.013	.009	.022	.0002	.....
Pork fat	107.0	.10	106.74	.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	789.0	44.00	114.00	459.00	.180	.280	1.230	.240	.690	.600	.630	.0050	3,125

CHART I

STANDARD BASIC DIET

No. I

Article	Quantity (gm.)	Protein (gm.)	Fat (gm.)	Carbohydrate (gm.)	Minerals (grams)			Vitamins					Calories
					Ca.	P.	Fe.	A	B	C	D	G	
Corn meal	92	8.3	2.0	69.0	0.011	.1225	0.0006		±			±	
Cane syrup	105			89.2									
Flour	111	12.5	1.2	83.4	0.022	0.1030	2.001		±			±	
Lard	81		81.0										
Rice	25	2.0	0.1	19.6	0.0023	.0240	0.0002						
Field peas	90	19.2	1.4	54.6	0.0756	.0360	0.0052	+	++			+	
Hominy grits	51	4.3	0.3	40.6	0.0056	.0734	0.0005	+	++			+	
Fat Salt pork	60	1.1	51.3	0.0	0.0011	.0115	0.0001						2890.0
Cod liver oil	90 cc.		90.0					++++			++++		810.0
Tomato juice	45 cc.	0.4	0.1	2.0	.005	.0117	.0002	++	++	++++		++	10.3
Iron Ammonium Citrate	6						1.02						
Calcium Gluconate	6				0.5580								
Cheese	60	17.4	21.6		0.5586	.4098	0.0007	++	++				264.0
Total		65.2	239.4	358.4	1.2382	1.1159	1.0285	++++	+++	++++	++++	+	3974.3

CHART II

citrate, and 60 grams of cheese, given as medication on the wards. This diet was called Standard Basic Diet No. 1, being deficient only in vitamin G (or B_2). (Chart II).

In this study, observations were confined to typical cases of pellagra with skin lesions, sore tongue, and gastro-intestinal disturbances. Patients critically ill with pellagra either did not receive this Standard Basic Diet or were fed it only after being supplemented by an abundance of known pellagra-curative substances. A total of 37 patients have been studied in detal, 23 of whom were given the Standard Basic Diet, and the remaining 14 given house diets as controls.

OBSERVATIONS

A marked improvement of the skin lesions occurred in three patients in the hospital on the Standard Basic Diet. A similar observation was made by Spies in five cases.[3] At the suggestion of Dr. Harold L. Amoss the patients were exposed to direct sunlight to determine whether the disappearance of the lesions were due to the cure of the pellagra or to the protection from the sun afforded by the hospital. Three patients, receiving the Standard Basic Diet whose skin lesions had disappeared were exposed to direct sunlight and developed the characteristic skin rash over the exposed areas.

CASE REPORTS

Case 1: R. S., No. 5,115, a white male, aged 8 years, was admitted to the hospital May 1, 1931, with the complaint of red hands and face for two weeks and sore mouth for seven days. The patient was dull and listless; the tongue was red; and the dorsal surfaces of the hands and the entire face, excepting the forehead and tip of nose were covered with a confluent dermatitis. Beginning May 1, he was given the Standard Basic Diet No. 1, shown in chart II. The lesions on the face and hands cleared rapidly during the following six days and by May 7 had practically disappeared.

Beginning May 7, the hands and feet were exposed to the direct rays of the sun for one-half hour daily with the face protected by a wide brim hat. After four days of exposure, the face remained clear but the hands and feet were covered with new lesions. With the appearance of the skin lesions, the tongue and buccal mucosa became fiery red, and the patient had several large, liquid stools. On May 12, the exposure was discontinued and the patient was confined to the hospital. The Basic Diet was continued without the addition of any pellagra-curative factor and, again by May 27, 15 days later, the lesions had disappeared and the tongue was normal. At this time, the hands were re-exposed to sunlight one-half hour daily for five days, and the lesions returned.

On June 2, the Basic Diet was discontinued and he was given a house diet which contained an abundance of pellagra-curative substances. The

skin lesions disappeared, appetite improved, he became alert mentally, and was discharged as well on June 13.

Case 2: A. R., No. 13,406, a white female, aged, 25 years, was admitted to the hospital on April 21, 1932, complaining of marked diarrhea, nausea and vomiting, nervousness, sore tongue, and a rash over the dorsum of both hands, which had recurred every spring for the past four years. Her diet had consisted of cereal, canned milk, blackeyed peas, fat pork, biscuits, corn bread, syrup, potatoes, and occasionally cabbage or dried beans.

Physical examination revealed an emaciated young white girl with dry, scaly, slightly reddened skin over the dorsum of the hands and at both elbows. The tongue was red and swollen. There was a mild secondary anemia and gastric analysis showed normal acidity after histamine.

She was given the Standard Basic Diet No. 1 and the right hand and arm were exposed to direct sunlight for thirty minutes on the day after admission, the rest of the body being carefully protected. This exposure was repeated the next day for thirty minutes, and on each of the following two days for sixty minutes. A violent reaction with vesiculation resulted, and at the elbow a second degree burn. The rash on the arm which had been protected from the sun had almost disappeared during this interval. At the same time her general condition became very much worse; anorexia was marked; the diarrhea had increased to 18 stools per day; and the tongue became much more painful. The arm of a control patient exposed for a similar length of time showed only a mild erythema.

One hundred and fifty grams of a commercial wheat germ flour, including some bran (Wheatone) were added to the diet daily. Although the lesion on the arm improved slowly, her condition remained the same or worse. On May 6, ten days after the last exposure to the sun, she was given a house diet and 90 cc. daily of an aqueous extract of liver* by mouth. After five or six days a striking change was noted; the diarrhea had ceased; the tongue was no longer sore; the appetite improved; she began to gain in weight; and the skin lesions disappeared. She gained 5.5 kilos during the next three weeks. Beginning May 23, the right hand and arm were again exposed to the sun for five days, as before, and this time only a mild erythema, such as seen in a normal control, was observed.

Cases 1 and 2 illustrate the development of the characteristic skin lesions following exposure to sunlight, while subsisting upon Standard Basic Diet No. 1. Case 2 demonstrates that a unilateral rash may be produced in pellagra by a unilateral exposure to sunlight. Cases 2 and 3 likewise show that the skin lesions do not recur after exposure to the direct rays of the sun, subsequent to the administration of pellagra-preventive substances. Nine other patients, whose rashes had disappeared

*This extract, known as Valentine's Liver Extract E-29, was furnished through the courtesy of the Valentine Meat Juice Company. In this paper it will be referred to as "an aqueous extract of liver."

while receiving pellagra-preventive substances, were also exposed to the sun and none of them developed skin lesions.

Case 3: A. S., No. 5,114, a white female, aged 26, was admitted to the hospital on May 1, 1931, with the complaint of sore mouth and lesions on the dorsum of the hands and feet. The patient had had a diet limited to bread, pork fat, tea, and pinto beans without red meat, vegetables, milk or fruit for the past year. Seven months before admission she became sluggish, developed digestive disturbances, and a sore mouth. Four months before admission dermatitis appeared on her hands and feet. Physical examination revealed a thin, emaciated, white woman with a red tongue and buccal mucosa, gingivitis, and a mild dermatitis over the hands, feet, and vulva.

Beginning May 1, she was given the Standard Basic Diet No. 1 supplemented by three vials of a powdered liver extract† by mouth daily. (Each vial contained the extract derived from 100 grams of fresh liver.) Improvement was noted in the lesions on the hands and feet on May 5, four days after the treatment was started. By May 22, the oral and buccal lesions were healed and the dermatitis had completely disappeared from the hands, feet, and vulva. Beginning May 22, one hand and arm were exposed to the direct sunlight for 15 minutes each day and increasing to 1 hour daily. After seven days of exposure a normal healthy tan developed over the exposed area without evidence of dermatitis. The patient gained three kilos and was discharged in excellent condition on June 7.

Ten patients* with pellagra were fed the Standard Basic Diet for varying periods without improvement, and were then given 90 cc. of an aqueous extract of liver by mouth daily. Without exception a striking clinical improvement began between the third and fifth days, and continued until complete recovery.

Case 4: R. H., No. 16,778, a white man, aged 66, was admitted to the hospital on July 29, 1932, complaining of burning of the hands and feet, diarrhea, and sore tongue for the past three or four weeks. His diet had been deficient in fresh, red meats and green vegetables, though he had been drinking some milk. Examination revealed a beefy, red tongue and a marked dermatitis with sharply defined margins over the dorsum of the hands, arms and feet. The feet were secondarily infected. The remainder of the examination was negative except for a mild secondary anemia.

He was given the Standard Basic Diet No. 1 for several days with little change in his condition and then, following exposure to the sun, thirty minutes a day for two days, he became rapidly worse with anorexia, increased diarrhea, and nausea and vomiting. Starting on August 1, he was given 90 cc. of an aqueous extract of liver by mouth daily. Five days later he began to improve and by the tenth day the diarrhea had subsided, the tongue was normal, the nausea and vomiting had stopped, and the

†Parke, Davis & Company.
*This series does not include Case No. 2.

dermatitis had almost disappeared. After three weeks of this treatment he had gained six kilos and was feeling entirely well. (Chart III).

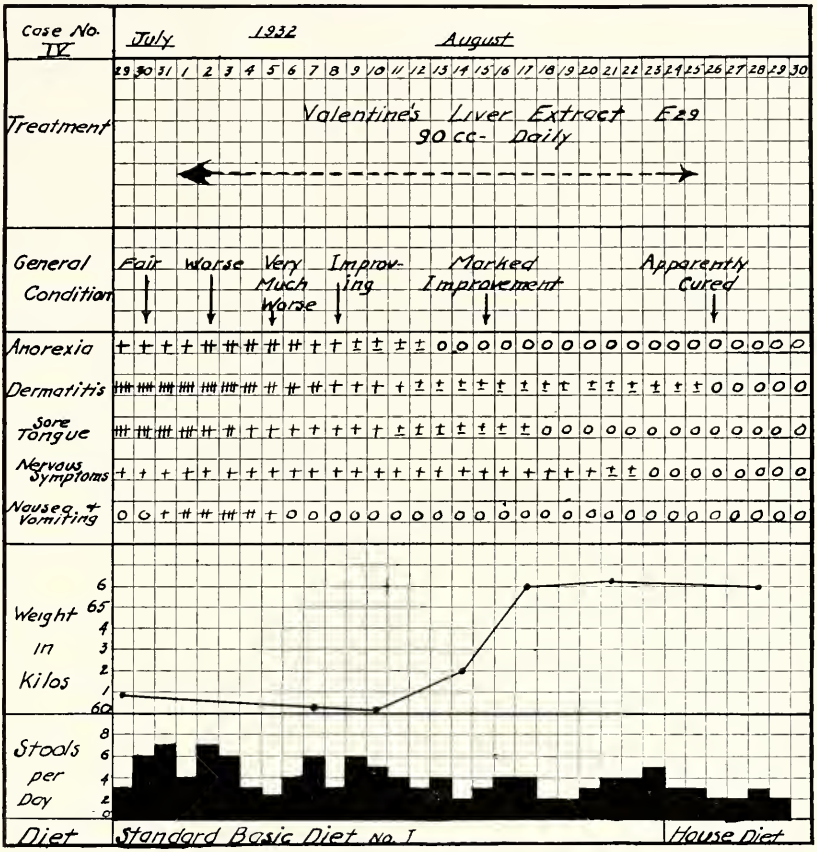

CHART III

EFFECT OF LIVER EXTRACT

Having obtained satisfactory evidence of the efficacy of an aqueous extract of liver in the cure of pellagra in ten cases, and of a powdered extract of liver in one case, Liver Extract No. 343 (N.N.R.) was given intramuscularly to another series of patients.

Case 5: T. I., No. 13,011, a colored male, aged 49, was admitted to the hospital on April 9, 1932, with the complaint of progressive weakness for two months and pain in abdomen with diarrhea for six weeks. Three weeks before admission, while plowing in the hot sun, a dermatitis developed over the dorsal surfaces of the hands and wrists and simultaneously, the tongue, nose and rectum became sore. For the past two years the patient's diet had consisted almost entirely of fat salt pork and corn

bread, except during the summer months, when he had a few green vegetables. Physical examination revealed a malnourished colored man, with dermatitis over the radial aspects of both hands, fiery red tongue and buccal mucous membranes, severe gingivitis, and sore rectum with the peri-anal skin having a scalded appearance.

Beginning April 9, the patient was given the Standard Basic Diet No. 1. The symptoms continued and the stools increased from three on April 9 to eleven on April 13, and then decreased to five on April 16, when he reported that he felt somewhat improved. The stools again increased to eleven per day by April 24, and all the other symptoms became aggravated. On April 25, he received two intravenous injections of calcium gluconate (10 cc. of 10% solution) and one injection on the following day. For one week, starting April 27, he received daily intramuscular injections of 5 cc. of Liver Extract No. 343. During this period his stools decreased, but all the other symptoms were aggravated and he developed nausea and vomiting so that this therapy was discontinued.

Beginning on May 6, he received 30 cc. of an aqueous extract of liver by mouth three times daily. Between the third and the sixth day of the treatment the nausea and vomiting, abdominal pain, diarrhea, sore tongue, anorexia and dermatitis disappeared and he began to gain weight for the first time since admission. Exposure to direct sunlight for four days failed to produce skin lesions and he was discharged in good condition on May 29, 1932. (Chart IV).

Case 6: J. W., No. 11,803, a white male, aged 21, was admitted to the hospital on March 2, 1932, with a diagnosis of bronchiectasis. He remained in the hospital for 18 days on an amplified house diet containing an abundance of pellagra-preventive substances, and was discharged in good condition, with no evidence of skin lesions on March 20, 1932.

He was re-admitted on May 9, 1932, complaining of a painful rash over the hands and arms, sore mouth and tongue, and a diarrhea for the past three weeks. These symptoms began four weeks after discharge. His diet since discharge had been deficient in green vegetables and fresh red meats. Physical examination revealed typical lesions over the face, neck and forearms; the tongue was only slightly reddened; the lungs showed evidence of bronchiectasis at both bases, but the examination was otherwise negative. There was no anemia, and gastric analysis showed no free HCl after histamine.

He was given the Standard Basic Diet No. 1 and 150 grams of a commercial wheat germ (Wheatone) daily. The skin rash gradually subsided though his general condition became progressively worse with increased diarrhea, sore tongue, anorexia, and after two weeks nausea and vomiting.

Beginning May 27, he was given daily 5 cc. of Liver Extract No. 343 intramuscularly. Very slight, if any, improvement was noted. The nausea, vomiting, diarrhea, and anorexia continued unabated. On June 3, 60 cc. of an aqueous extract of liver were given by mouth for four days and then

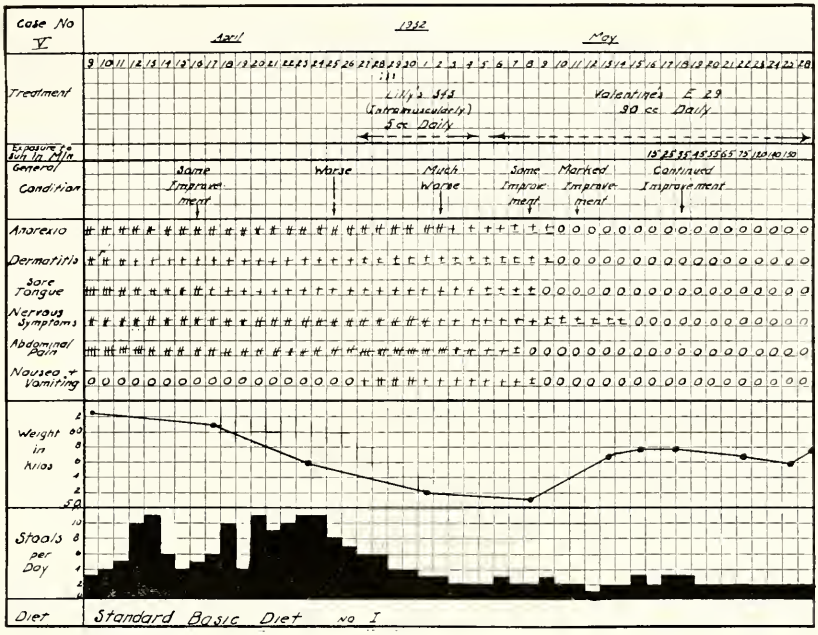

CHART IV

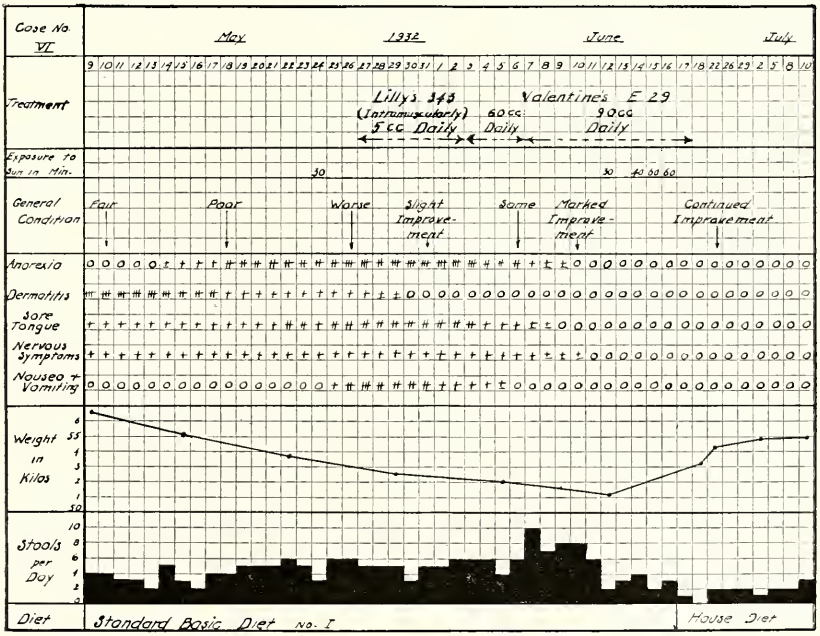

CHART V

increased to 90 cc. daily. Four days after instituting this therapy, the appetite improved rapidly; there was no further nausea and vomiting, and the tongue began to heal. The diarrhea subsided eight days after starting this treatment. Beginning June 12, the right hand and arm were exposed to sunlight for 30, 40, 50, and 60 minutes on successive days without recurrence of the skin rash. He gained weight rapidly and was discharged with no evidence of pellagra on July 11. (Chart V).

In these two cases and in two others treated in the same manner, little if any clinical improvement was observed during the period of intramuscular treatment with Liver Extract No. 343 in 5 cc. doses. These four patients promptly recovered when given 90 cc. of an aqueous extract of liver daily by mouth.

A fifth patient, who had shown no evidence of improvement with the intramuscular Liver Extract No. 343 in doses of 5 cc. daily, made a dramatic recovery in three days after taking by mouth daily doses of the residue obtained from the alcoholic precipitation of 90 cc. of an aqueous extract of liver.*

DISCUSSION

In order to determine the value of certain extracts of liver in the treatment of pellagra a diet was prepared, similar to that which the patient had been taking prior to the development of symptoms. This Standard Basic Diet described above contains adequate amounts of proteins, fats, and carbohydrates, minerals and all the known vitamins except vitamin G (B_2). Patients with pellagra reported in this series did not improve on this diet, and three out of four dogs partaking of this diet died of typical black tongue between the 25th and 45th day of the experiment.

It would seem that disappearance of the skin lesion does not necessarily indicate a cure of the disease since the lesions can be reproduced by exposure to direct sunlight, unless the patient has been protected by some pellagra-curative substances. The failure of the patient to develop skin lesions after adequate exposure to sunlight furnishes an additional clinical test of the cure of the disease.

The evidence presented here indicates that the bilateral symmetry of the lesion is due to bilateral exposure to sunlight. In this series it has been shown that unilateral lesions can be produced by unilateral exposure.

Oral administration of an aqueous extract of liver in doses of 90 cc. daily effected a cure in ten cases; a powdered extract of liver in doses of three vials daily in one case; and an insoluble residue derived from the alcoholic extraction of an aqueous extract of liver in one case.

Of the 14 patients given house diets as controls, three were far advanced cases and died even though they received an abundance of known pellagra-curative substances. The remaining 11 patients recovered,

*The addition of 95% alcohol to an aqueous extract of liver produces a precipitate which can be dissolved in water and be given by mouth. This material was prepared for us by the Valentine Meat Juice Company.

their clinical course being about the same as that group of patients receiving the Standard Basic Diet and the aqueous liver extract by mouth.

Ramsdell and Magness[4] have reported the recovery of 22 cases of pellagra treated with 2 cc. daily of Liver Extract No. 343 intramuscularly. These patients received a general house diet, which undoubtedly contains a considerable amount of pellagra-curative substances. In the present series of five cases treated with Liver Extract No. 343 intramuscularly in doses of 5 cc. daily, there was little or no clinical improvement. This discrepancy is explained by the difference in the diets, since our diet contained practically no Vitamin G (B_2).

It is of interest to note that yeast which cures pellagra[5] and black tongue in dogs[6] is ineffective in the treatment of pernicious anemia,[7] until it has been digested with normal gastric juice[8]. Since Spies[9] has shown that meat digested with the gastric juice of pellagrins with achlohydria is effective in the treatment of pernicious anemia, it is probable that the deficiency in pellagra is entirely different from that in pernicious anemia.

It is unfortunate that the aqueous extract given by mouth and the extract given intramuscularly were obtained from different sources. At the time that this study was begun, an intramuscular preparation derived from the aqueous extract was not available. Any comparison of the two substances should be made with great caution, and no conclusion can be drawn from this study as to the nature of the factor in the aqueous extract of liver which cures pellagra. The need of carefully controlled experiments along the lines suggested in this work is obvious in any effort to discover the true cause of pellagra.

SUMMARY

1. A diet has been prepared for the clinical study of pellagra which is adequate in all known nutritional elements except Vitamin G (B_2).

2. Exposure to direct sunlight in North Carolina in the spring and summer months affords an additional clinical test of the presence of pellagra.

3. There is present in an aqueous liver extract, given by mouth, in doses of 90 cc. daily some factor which is capable of effecting a remission of symptoms in pellagra.

4. Five patients, subsisting upon a Vitamin G (B_2) deficient diet, showed little or no improvement when given Liver Extract No. 343 intramuscularly in doses of 5 cc. daily.

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DISCUSSION

Dr. Frederick R. Taylor (High Point): Mr. Chairman, Members of the Section: I very much fear that the Chairman has picked on the wrong man to discuss this for I have to confess at the outset that I have not used liver in the treatment of pellagra. My first treatment along this line, from the practical standpoint, started yesterday when I gave a sample treatment of Valentine's Liver Extract in a pellagra case. But I have had a considerable interest in the subject of pellagra and have tried to keep fairly well in touch with the literature, and shall have a few things to say in the course of the discussion which have some bearing. And in my discussion I shall try to show why I have not tried liver in pellagra.

In the *Virginia Medical Monthly* for January, 1931, Dr. Alfred Chanutin of the Biochemical Laboratory of the University of Virginia has a paper on "Vitamin B Complex in a Concentrated Aqueous Liver Extract." The extract tested was Valentine's E-29. He found it relatively rich in the B complex (B plus G). He does not separate the B and G but concludes that so far as the complex of the two goes, two cc. of the liver extract is roughly equivalent to two hundred milligrams of dried brewers' yeast. As two hundred milligrams is only one-fifth of a gram, I can see no apparent superiority in the liver extract, and the expense is far greater than is that of yeast, a factor of prime importance to most pellagrins, because pellagra and poverty usually, though not always, go hand in hand. Most of our pellagra patients cannot afford to buy large quantities of liver extract. If liver extract is excellent and if yeast, costing perhaps one-tenth as much, is equally excellent the question that arises from a practical standpoint is, why prescribe liver extract?

In 1929 Dr. Emma Victoria Carlsson selected for her dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in the Faculty of Pure Science of Columbia University the subject of "Quantitative Experiments Upon the Occurrence of Vitamin G in the Body, Including the Influence of the Food." Groups of rats were used in the experiments and given first a diet adequate except for a deficiency in vitamin G. These served as negative controls. Over a period of eight weeks the average loss in weight per rat was 7.5 grams. Then certain special foods were given to supplement this diet with a supply of vitamin G and the results noted. I shall not quote all the data but merely use the most significant points.

The addition of muscle tissue to the diet (1.5 grams daily per rat) caused in eight weeks an average gain in weight of 62.6 grams per rat.

Adding 0.1 gram liver caused an average gain of 36.8 grams per rat.

Adding 0.1 gram of kidney caused an average gain of 31.2 grams per rat.

Heart muscle, lung tissue, etc., were also tested. All these figures are from tissues taken from animals fed on a diet adequate in vitamin G to be fed to the rats on the inadequate diet. If similar tissues were taken from animals which were themselves on a diet deficient in vitamin G, not nearly so great a gain was noted in the rats eating these tissues.

Dr. Carlsson finally concludes that liver and kidney contain about the same concentration of vitamin G, that each is about ten times as rich in it as is skeletal muscle, that heart muscle is about five times as rich as skeletal muscle, brain tissue more than two and a half times, spleen about three times, and blood only one-third as rich per gram as is skeletal muscle.

But again I come back to the eminently practical factor of expense. If you can get a similar vitamin G content for much less expense in yeast, why use liver extract in the vast majority of pellagra patients who must consider the cost?

This has nothing directly to do with it but I don't want to close without bringing up what I consider one of the most essentially brilliant pieces of research in recent times, some work done by Dr. James H. Smith, of Richmond. He published a paper in the *Archives of Internal Medicine*, a very exhaustive thing, on the effects of solar radiation on metabolism in diseases with special reference to sulphur metabolism and to pellagra, and he finds that the reason the sun rays produce an eruption in pellagra is because there is a deficiency of cystin in the blood, that there is some fault in the sulphur metabolism in pellagra, and that that is something which must be taken into account in explaining the symptoms of this disease.

I wrote Dr. Smith and said, "Well, that brings on more talk. Why not try sodium thiosulphate in the treatment of pellagra?"

He said he was not treating any cases but merely doing research, but that a man in Alexandria, Egypt, had reported a large number of cases treated with sodium thiosulphate with remarkably beneficial results, and that Dr. Porter, Professor of Medicine in the College of Medicine at Virginia, had had a series of a few cases with similar results, too few yet to publish.

I have not yet had any experience with the thing but the first case of pellagra that I get that is severe enough not to yield promptly to yeast treatment and that kind of thing, I want to try it.

In closing I just want to say this: that another serious blow has been dealt to the pure dietary school represented by Goldberger as opposed to the dietary infectious school, in this way: the pure dietary men used to state that pellagra occurred in this state suddenly in 1907 because of the depression, they couldn't get enough to eat, and that the depression caused the sudden increase in pellagra.

Let's see what the depression has done to pellagra in North Carolina. I wondered last year where pellagra had gone. It seemed largely to have disappeared from our section of the country, and I would like to hear from some people here as to whether they noticed the same thing. But now it seems to be coming back a little.

We reached the low water mark of deaths in this state in 1923 with 224 deaths. It went up steadily until 1930 when there were 1,015 deaths. That was just at the very beginning of the depression. It hadn't been on long enough to produce any marked nutritional effect. In 1931, instead of 1,015 deaths there were 696 deaths and in 1932 the provisional figures (they are not yet absolutely complete and final) are 465 deaths, the lowest death rate since 1926.

If depression is a cause of pellagra because they can't eat, or was in 1907, it seems to be a reversible action. (Applause)

Chairman Whitaker: Dr. Ruffin's paper is open for further discussion. Is there any further discussion?

Dr. D. T. Smith (Durham): I have been associated with Dr. Ruffin in this study and I would like to mention a point about the expense of the Valentine's extract which Dr. Taylor made, and which is quite a good point, but we weren't looking originally for something that was less expensive. We were trying to find out the most concentrated product we could use to produce remission in the quickest time. But we have learned something about expense because this residue which Dr. Ruffin referred to that we have only used on one case is a by-product that will be very cheap, and if subsequent cases show that this product can be used as efficiently as the expensive Valentine's liver extract, it will eliminate the economic argument.

With regard to the other point about pellagra being correlated with the depression, I think we have to consider the fact that some education has been done in North Carolina and that a great many people eat yeast and do get hold of a little red meat once in a while, and perhaps that factor is involved.

The question of the sulphur metabolism in regard to pellagra which Dr. Smith raised in Richmond in a very beautiful piece of work and is quite a good one, and our studies give no evidence for or against it because Valentine's extract is full of sulphur and cystin. But it is possible by using this diet we have worked out to assay sodium thiosulphate and various other sulphur compounds in pure culture and find out whether or not they will work. (Applause)

Dr. Daniel: I would just like to call attention to a statement Dr. Taylor made regarding the sudden appearance of pellagra in North Carolina in 1907.

I happened to have been practicing in North Carolina prior to that time and I saw pellagra frequently in the late nineties. I was not in North Carolina in 1907.

Dr. Charles H. Phillips (Thomasville): I am firmly convinced that the reason that pellagra diminished in 1931 and 1932 is because the people in the cotton mill centers and other industrial centers had access to more fresh vegetables than they had been accustomed to consuming in the past. When the depression came on and these people were out of employment a fright came over them in regard to their existence and this, helped by the encouragement of all relief workers in these sections, coupled together with the fact that most of the municipalities furnished horse power and ploughs for breaking up their gardens, furnished them seeds and encouraged the planting and cultivation of gardens, which resulted in many of these people consuming large quantities of vegetables in the last two years that they had not been accustomed to doing. I fear that when prosperity returns and these people get full time in the mills they may not feel that they have time to plant and cultivate gardens, welfare people will let up in their work and these people will begin to be fed again out of the paper poke from the nearby grocery store, neglecting fresh vegetables and forgetting the lesson they have been taught by the depression and I am of the opinion that when this occurs pellagra will be on the increase again.

Chairman Whitaker: Is there any further discussion: If not, I will ask Dr. Ruffin to close.

Dr. Ruffin: We realize, of course, Dr. Taylor, that the expense of Valentine's E-29 is prohibitive for the ordinary patient in pellagra. What we were trying to do as Dr. Smith explained was to find some concentrated product which would help the patient. When a patient is brought to

a hospital, one is interested in getting that patient well as quickly as possible, and in that way save expense. Of course, patients can't buy it. We realize that.

I am not familiar with Dr. Smith's work to which he referred although Dr. D. T. Smith has already commented on that.

I agree entirely with Dr. Phillips' explanation that the fact that pellagra has been less since the depression because the price of tobacco and cotton have gone so low there is no profit in planting them. Therefore these people instead of planting their fields in those products in all probability are planting gardens and eating the vegetables that they derive therefrom. (Applause)

Chairman Whitaker: The next two papers on the program will be discussed together. The first one of these is, "Agranulocytosis: A Report of Two Cases with Autopsy Findings," by Dr. P. A. Shelburne, of Greensboro. The second is "Infectious Mononucleosis," by Dr. E. R. Boney, of Kinston.

AGRANULOCYTOSIS (MALIGNANT NEUTROPENIA): REPORT OF TWO CASES WITH AUTOPSY FINDINGS*

By P. A. Shelburne, M.D., Greensboro, N. C.

Agranulocytosis, or malignant neutropenia, was described by Europeans as early as 1885. Since 1922 it has been recognized and reported by many writers. Its course may be acute, even fulminating, leading to early death; or it may be chronic and relapsing, in which type the percentage of recoveries has been high. The acute condition is characterized by high fever, extreme prostration, necrotic or gangrenous ulceration of some mucous membrane—usually in mouth or pharynx—an extremely low leukocyte count, and decrease, or even disappearance, of the granulocytes. The hemoglobin, platelets and red blood corpuscles remain about normal. Jaundice is often present, preceded by a peculiar slate color of the skin. The chronic or relapsing type of agranulocytosis manifests these symptoms to a limited degree only.

The etiology is not known. A positive blood culture has been obtained in about one third of the cases reported, but the organism has not been constant. The course of events seems to indicate that the necrotic or gangrenous process involving mucous membranes is a result of agranulocytosis rather than the cause.

Agranulocytosis may attack any person of either sex, though it seems to be more prevalent among women past middle age, with a ratio of four women to one man. For some reason the incidence of the disease is rather

*From the Medical Service of the Wesley Long Hospital.

high among physicians and nurses. There appears to be no age limitation as cases of four years and seventy-two years have been reported.

The pathologic findings are those of an overwhelming toxemia, focusing its activity on the bone marrow. In fulminating cases sections of bone marrow show a decrease or absence of all forms of granulocytes. According to Kracke[1] there is liquefaction of the marrow with, however, preservation of the erythroblastic tissue intact. Friedman[2] takes the view that: "The primary disorder lies in a depressed agranulocytic mechanism of the bone marrow which results in a marked agranulocytic leukopenia." Therefore, it follows that when one of the defensive mechanisms of the body (polymorphonuclear leukocyte production) is broken down, any type of infection on any mucous membrane may successfully invade the tissues of the body.

This condition must be differentiated from: certain other blood diseases as the leukemias, Hodgkin's disease, aplastic anemia; poisoning with such drugs as arsenic, mercury and bensol; infections such as malaria, typhoid fever, influenza and septicemia.

Nucleotide K96, manufactured by the Smith-Kline-French Laboratories of Philadelphia, has been extensively used in the treatment of this disease and is certainly worthy of further trial. A refined product is now marketed under the name of Pentose Nucleotide. According to Jackson[3] nucleotide K96 is a mixture of the four constituent nucleotides, each of these being a compound of a purine and a pyramidine base together with pentose and a phosphoric acid. Pentose nucleotides found in normal human blood as first shown by Jackson[4] exist principally in the nucleii of living cells. It is known that this substance stimulates white cell production in animals and recovery has followed its use in many cases of agranulocytosis. It requires five days to see any results from its administration. It may be given two or three times within twenty-four hours, preferably by intramuscular injection.

Fisher,[5] and Chrisman and Hinton,[6] report several recoveries following transfusions of blood from donors who appeared to be recovered patients. Friedman[7] has been an exponent of the use of stimulating doses of X-ray over the long bones.

Taussig[8] reported an interesting summary of treatment of 328 cases. (Fig. 1).

Doan[9] included nucleotide K96 in his summary of treated cases. (Fig. 2).

Case 1: An unusually intelligent white housewife, aged 35, seen in consultation,* was admitted February 6, 1933, with complaints of sore mouth and throat and great prostration. The family history was irrelevant. Her past history was interesting and important. Since 1930 she had

*Dr. B. R. Lyon, Staff of Wesley Long Hospital.

suffered acute recurring attacks of gingival and pharyngeal infection. Each illness was diagnosed by her dentist as Vincent's infection and treated as such.

The present illness began 2 days before admission with symptoms noted above. The temperature was 100, pulse 120. The patient was extremely prostrated. Acute gingivitis was present; the pharynx was

Treatment of three hundred and twenty-eight cases summarized by Taussig:

	Cases	Deaths	Mortality
Cases treated by means of X-ray	64	34	53%
Cases treated by means of transfusion	53	34	64%
Cases treated by arsphenamine	53	24	73%
Cases treated with other theraputic measures	178	133	75%

Figure 1

Therapy	Cases	Deaths	Mortality %
Untreated	Many		90+
Misc. Therap. Measures	178	133	74
Arsphenamine	33	24	72
Blood Transfusion	53	34	64
Irradiation	64	34	53
NUCLEOTIDE	**44**	**11**	**25**

Figure 2.—Doan's Summary including nucleotide therapy.

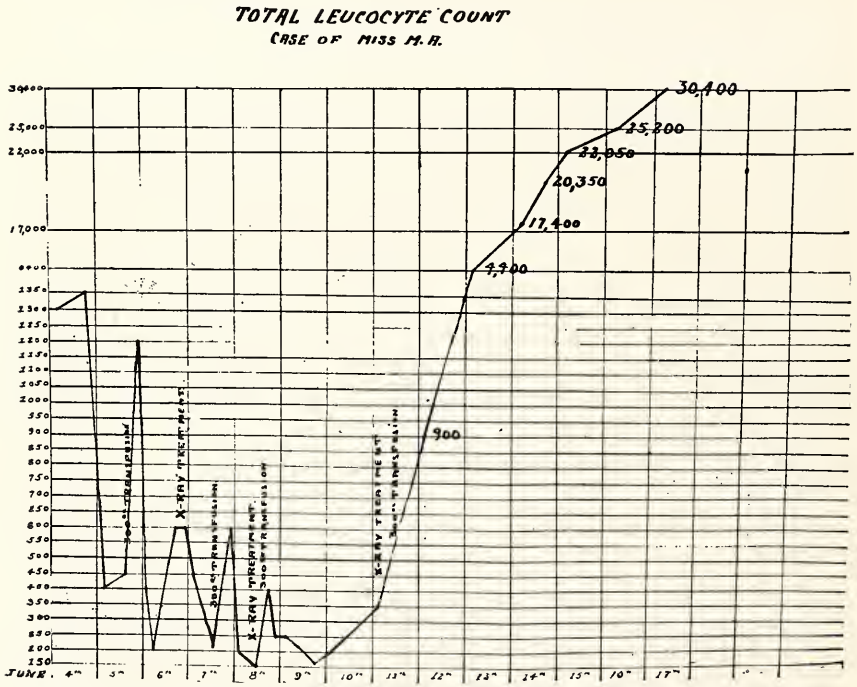

Figure 3.—Total leukocyte count of Case 2. Nucleotide therapy instituted June 5. Note improvement on sixth day of therapy. Ruptured bowel occurred June 11. However, white cells continued to increase.

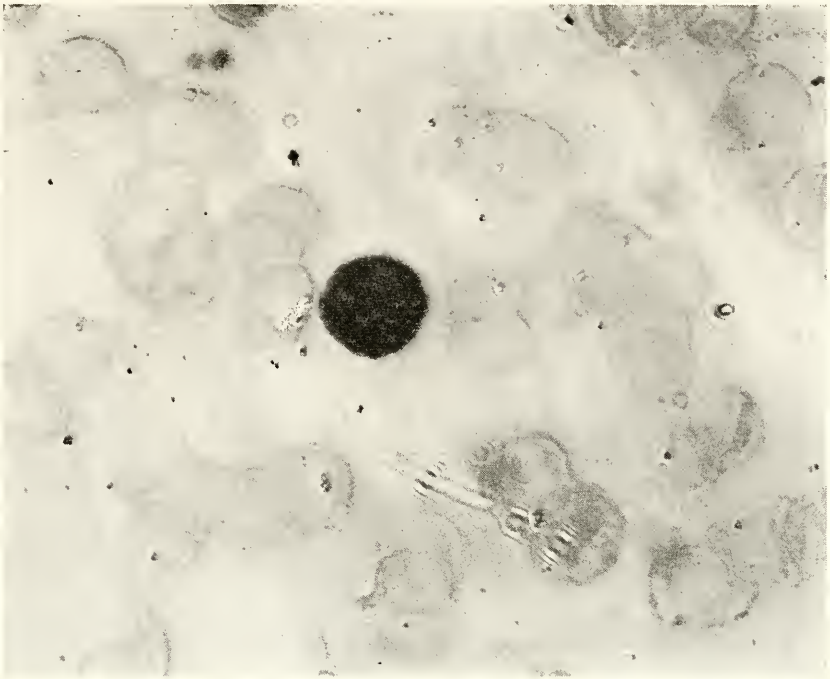

Figure 4.—Typical type of white cell found when count was lowest. No granular cells were found until 6th day of Nucleotide therapy.

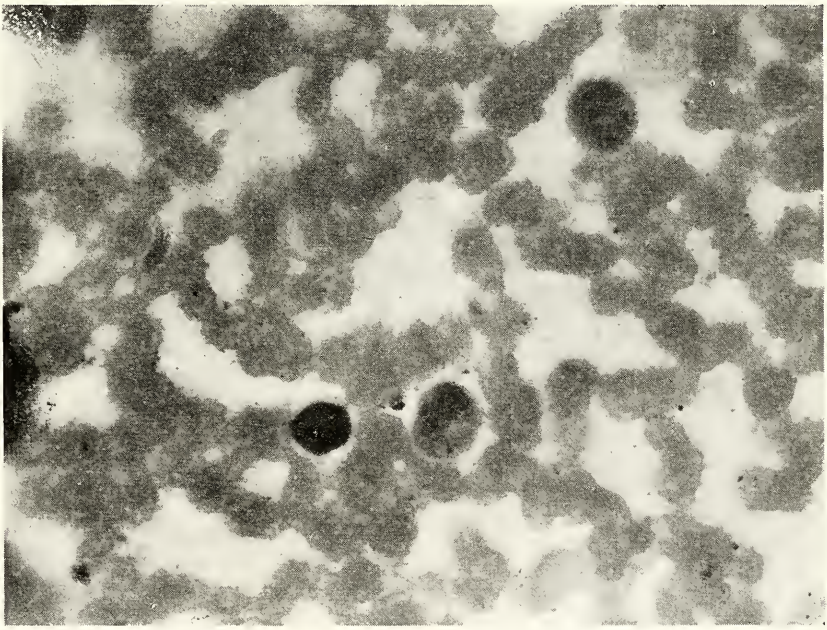

Figure 5.—Smear made when blood count was 4,400. Note presence of small lymphocytes and granular cells.

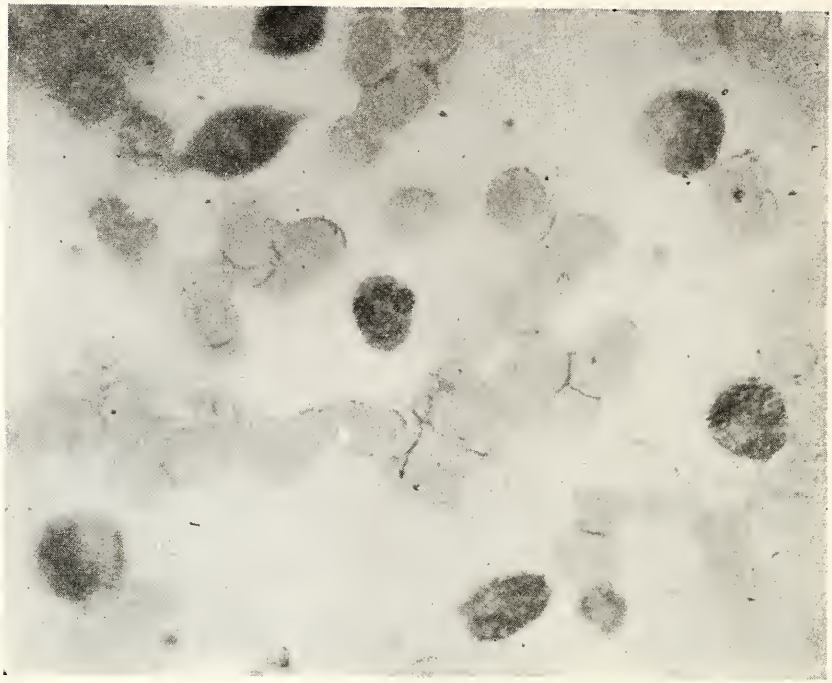

Figure 6. When count was 30,400. Granular cells had almost entirely replaced large and small lymphocytes.

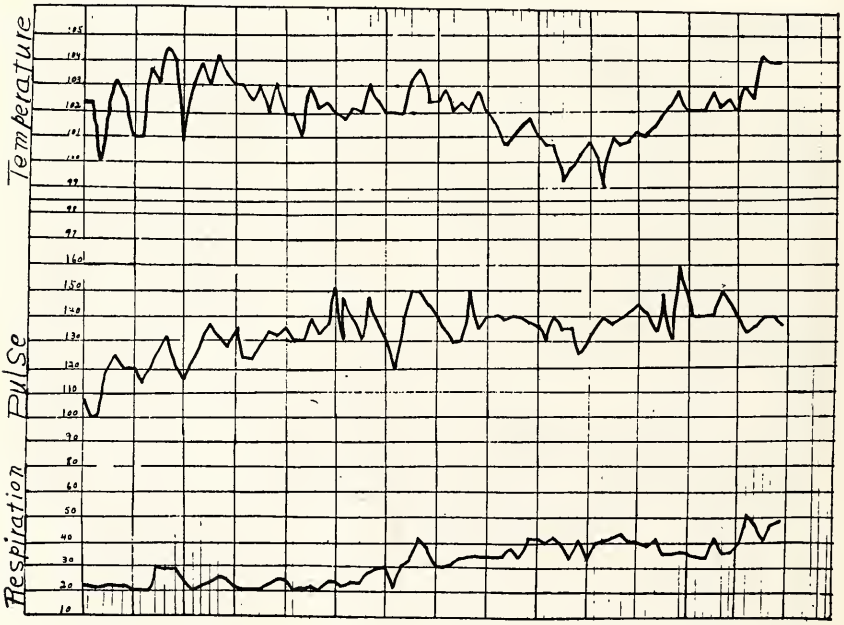

Figure 7.—Temperature and pulse rate high throughout illness.

Date 1932	WBC	RBC	Hbg.	Pmn.	S.mn.	L.mn.	Bas.	Tr.	Eos.	Mye-locytes
6-4	1,300	4,050,000	90%	0	92%	8%	0	0	0	0
	1,350			0	90%	10%	0	0	0	0
6-5	400			0	91%	9%	0	0	0	0
	450				96%	4%	0	0	0	0
	1,200									
6-6	400									
	200	3,610,000	87%	0	97%	3%	0	0	0	0
	600									
	600									
6-7	450	3,590,000	80%	0	95%	5%	0	0	0	0
	300	3,560,000	80%	0	Small & large mn. decreasing					
	220	3.600,000	80%	0						
	600									
6-8	200	3,430,000	78%	0	Very few large & small mn.					
	150	3,000,000	78%	0	Very few large & small mn.					
	400	3,110,000	78%	0	Very few large & small mn.					
	250									
6-9	250	3,200,000	77%	0	86%	14%	(Tl. 39 cells 2 slides)			
	220	3,470,000	77%	0	89%	11%	0	0	0	0
	160	3,320,000	76%	0	80%	20%	0	0	0	0
6-10	200	3,280,000		0	78%	18%	0	0	0	0
	200	3,070,000	74%	0	68%	20%	0	0	0	12%
6-11	350	3,230,000	77%	0	64%	18%	10%	0	0	8%
6-12	900	3,460,000	78%	0	46%	26%	10%	0	0	18%
6-13	4,400	3,740,000	82%	0						
6-14	17,400	3,790,000	82%	1%	10%	0	0	0	0	89%
6-15	22,050			14%	12%	3%	0	0	0	71%
6-16	25,200			65%	10%	7%	0	0	0	18%
6-17	30,400			84%	6%	3%	0	0	0	7%

Table I shows all blood counts made on the patient.

Figure 8

Table II shows blood counts made on the patient's mother and father:

	WBC	RBC	Hbg.	Pmn.	S.mn.	L.mn.
Mother	6,000	4,180,000	91%	52%	40%	8%
Father	7,150	4,200,000	90%	60%	24%	6%

Figure 9

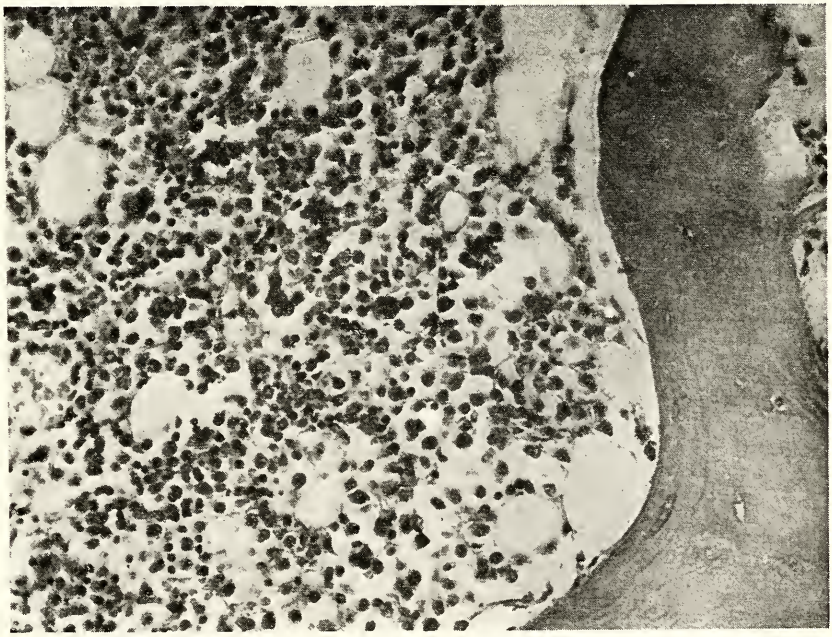

Figure 10.—Recovered bone marrow with normal elements present.

inflamed and edematous; dark red, swollen, indurated areas were bilaterally visible upon the cheeks; there were small ulcers upon the right small toe and both tonsils; the cervical nodes were enlarged on the right. Examinations of the blood revealed normal findings except that the white cells numbered only 350, of which 100 per cent were small lymphocytes. Urinalysis showed traces of albumin and numerous granular casts. Repeated blood cultures were negative. Cultures from the ulcers of face and toe showed a staphlococcus hemolyticus in pure culture and in those taken from gums and tonsils this organism predominated.

Treatment consisted in injection of nucleotide K96, stimulating doses of X-ray over the long bones and glucose intravenously. The only variation found in repeated blood counts was a replacement of some of the small lymphocytes by large lymphocytes; granular cells remained totally absent. The patient died the sixth day of illness.

Comment: From the history it appears the patient suffered mildly acute attacks of agranulocytosis for 3 years. The terminal fulminating attack showed no response either clinically or hematologically to any therapy.

Case No. 2: A white graduate nurse, aged 22, was admitted to the Wesley Long Hospital June 4, 1932, with fever, abdominal pain and diarrhea. She had had a severe attack of diphtheria at 7; influenza at 8; repeated attacks of tonsillitis for which tonsillectomy was performed at 17 and again at 21; mumps at 17; an appendectomy at 21.

Examination six weeks before the present illness had revealed mild pharyngitis, one abscessed tooth, normal values for hemoglobin and erythrocytes. A leucocyte count was not made.

The present illness which the patient attributed to eating several pickles which had been exposed to summer heat for three days, began at 2 A. M. June 2 with severe abdominal pain and diarrhea. The abscessed tooth was extracted during the course of the day. Examination that evening revealed nothing except fever and diffuse abdominal tenderness. The symptoms were regarded as being due to food poisoning.

On admission to the hospital the third day of illness she appeared extremely toxic, was having frequent stools and had a slate color of the skin. The abdomen was very tender, temperature 103, pulse 120.

Examination of the blood revealed normal values for hemoglobin, red blood corpuscles and platelets, 1300 leucocytes of which 92 per cent were small and 8 per cent large lymphocytes. Repeated blood cultures were negative as was the Widal reaction of the blood. Smears froms the pharynx showed long chained streptococci. Urinalysis was negative.

An adequate fluid intake was insured by daily injections of glucose intravenously. From the fourth day of illness nucleotide K96 was administered by intramuscular injection. The contents of twenty 10 cc. ampules

were used during the twelve days following. On the fifth day of illness X-ray therapy to the long bones was begun. Four blood transfusions of 300 cc. each were given.

It is evident that no improvement in the leucocyte count can be attributed to the transfusions. (Fig. 3). The lowest white cell count was 150 and blood smears made at this time showed only large lymphocytes. (Fig. 4). On the tenth day of illness six days after nucleotide therapy was initiated the white cells began to increase. Blood smears made following this rise showed granular cells and small lymphocytes in large numbers replacing large lymphocytes. (Fig. 5). On the eleventh day severe abdominal pain and marked tympanites appeared and a large mass was felt in the right lower quadrant. The impression was that perforation of the large bowel had occurred but her condition prevented operative intervention. During the last week jaundice, bloody diarrhea and hematemesis were noted. Where the white cell count reach 30,400 the granulocytes had practically replaced large and small lymphocytes. (Fig. 6). A high temperature and high pulse rate were present throughout the illness. (Fig. 7). A blood count was made approximately every 12 hours. (Fig. 8). Blood counts of the mother and father were normal. (Fig. 9).

Post mortem examination, limited to the abdominal cavity, revealed perianal ulceration, a 2 inch necrotic rent in the cecum, feces, blood and pus in the peritoneal cavity, splenic abscesses and hemorrhagic ulceration of the entire intestinal tract. Cultures of the peritoneal fluid and splenic abscesses showed a mixed infection with hemolytic streptococcus and staphylococcus albus. Sections of the bone marrow revealed normal myeloid tissue with a full complement of granular myelocytes and leukocytes. (Fig. 10). Microscopic study of the other tissues merely confirmed the gross findings.

COMMENT

1. The first three blood transfusions were followed by a slight rise in the leukocyte count with subsequent rapid fall to a new low level. Therefore it appears that in this case the effect of transfusion was unfavorable.

2. Ulceration of the entire intestinal tract is an unusual finding in this disease. Rupture of the cecum is even more rare.

3. It is evident that the patient had recovered from the agranulocytosis and died of peritonitis and sepsis. The granular leukocytosis, splenic abscesses and purulent peritonitis attest to this. As Jackson[10] says, "Pus cannot develop during the stage of leukopenia . . . it must be regarded as an index of recovered bone marrow activity."

4. The granulocyte count started to rise six days after nucleotide therapy was instituted. As has been pointed out by various authors[11] it is

about this time that hematological improvement occurs following this form of treatment irrespective of the previous duration of the disease.

5. If a complete blood count were part of the routine examination of every office and hospital patient more of the chronic, relapsing cases would be recognized.

SUMMARY

In one acute case of agranulocytosis there was no response to X-ray or nucleotide therapy.

A second patient treated with nucleotide, X-ray and blood transfusions recovered hematologically but died of a ruptured bowel.

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INFECTIOUS MONONUCLEOSIS

By Elwood R. Boney, M.D., Kinston, N. C.

For the past few years there has been an increasing interest in a symptom complex, which conservative clinicians have been rather slow to accept as a separate and distinct disease. Attention has been focused on it largely because of the interesting blood picture. The blood shows a moderate leucocytosis with an absolute lymphocytosis and a considerable number of abnormal large lymphocytes. At the present time it is generally known by its new name, acute infectious mononucleosis. The case histories which follow demonstrate accidental transference of this disease from patient to physician.

Case No. 1: F. S. W., physician, aged 49 years. On Feb. 13, 1932, was aching, had a sort throat, felt chilly and noted that he had a temperature 101° F. Had not felt well a day or two before he noticed his temperature. Continued to work until Feb. 15, 1932, when he had a chill and went to bed with temperature 102°. Thought he had influenza. On the morning

of Feb. 17th he noticed that a gland was enlarged in his right axilla. This recalled to him that on Feb. 9th, four days before he had temperature, a little boy had been brought to him from the country. (The parents of the child stated that he had been sick about two weeks with sore throat and fever. They brought him to the doctor because he had a gland enlarged in his axilla). The physician examined the child and questioned the parents about the child handling rabbits, squirrels, etc. The history did not point to tularemia and he could find no ulcerated wound of entry. When the physician examined the enlarged gland in the child's axilla, he thought he detected fluctuation and stuck a needle into the gland in search of pus. On withdrawing the needle it accidentally stuck into the physician's right forefinger. The puncture wound had caused no discomfort, had promptly healed and the doctor had forgotten about it. But now that a gland was enlarged in his own axilla, tularemia loomed into the picture again.

PHYSICAL EXAMINATION

A large adult male lying in bed. Very restless. His skin has a grayish hue. Body covered with beads of perspiration with highly acid odor. Mucous membranes of nose are hyperemic and turbinates engorged. Tonsils removed, fauces and pharynx hyperemic and lymphoid follicles are hyperplastic. Thick, heavy chest with scattered dry rales over both lung areas. Heart and aorta are negative. There was tenderness, not marked in upper abdomen. The spleen was not palpable. There was a lymph gland about size of an almond in right axilla, it was slightly tender, discrete and rubbery. Reflexes not exaggerated.

LABORATORY EXAMINATION

Blood Tests—Specimens of blood were sent to the National Institute of Health, Washington, D. C., which were subsequently reported negative for both tularemia and undulant fever. Blood cultures were negative after 24, 48 and 72 hours. Wassermann reaction negative. The blood showed 20.5 mgms. per cent of urea and 100 mgms. per cent of sugar.

BLOOD COUNTS AND SMEARS

Date	*R.B.C.*	*Hbg.*	*W.B.C.*	*Polynuclears*	*Mononuclears*
2-17-33	3,800,000	80%	19,000	53%	57%
2-19-33		80%	15,000	28%	62%
2-23-33	3,970,000	80%	8,800	18%	82%
2-27-33	4,220,000	82%	8,500	22%	78%
3-19-33	4,400,000	70%	9,150	36%	64%
4-20-33	4,500,000	78%	6,200	73%	27%

White cells have been reported in only two groups, polynuclears (which include neutrophiles, eosinophiles and basophiles) and mononuclears (including normal and abnormal lymphocytes and true mononuclears).

Wright's stain and oxidase stain were used in differentiating large abnormal lymphocytes from true monocytes, the abnormal lymphocytes did not show any granules were stained with oxidase stain. The blood smears showed an increase of lymphoid cells. In our studies we found many cells, which with Wright's stain looked like true small lymphocytes. There were also atypical lymphocytes varying in size from a small lymphocyte to a large monocyte. Many of these pathological lymphocytes contained kidney shaped indented nucleii. These lymphoid cells stained deeply with Wright's stain. It was with difficulty that we could accurately classify them and for this reason in reporting them, they have all been included in one group mononuclears. By using Good pastures oxidase stain, we were able to see that the cells were of lymphoid origin for they did not show granules. There were a small number of true monocytes showing granules.

Urine: The urine was amber, specific gravity 1.018, albumin heavy trace, sugar none. The microscopic examination revelaed 2-3 pus cells to each high power field and an occasional hyaline cast. Specimens of urine were repeatedly examined but showed no other evidence of abnormality. As the fever declined the amount of albumin decreased and entirely cleared up as the patient recuperated. Throat smears and cultures showed staphylococci and long chain streptococci. There was no evidence of fusiform bacilli or spirillum.

X-ray examination did not reveal enlargement of the lymphoid glands in the mediastinal space.

PROGRESS OF THE CASE

This patient was actually ill for several days; on four successive days his temperature reached a maximum of 104°. He was very toxic and had drenching acid sweats. Sore throat and difficult breathing on account of nasal obstruction were complained of for about two weeks. As the disease progressed the anterior and posterior cervical glands enlarged in his neck and enlarged lymph glands appeared in the left axilla and both inguinal regions. The spleen enlarged but the liver was never palpably enlarged. During the latter part of his illness the patient complained of pains of a neuritic character in his arms and legs. His symptoms and temperature abated by lysis and on March 9, 1932, one month after he pricked himself with needle, his temperature was normal. He recuperated slowly and his strength did not return for several weeks.

Case No. 2: On Feb. 19, 1933, T. H., male, age 4 years, was brought to hospital at our request for examination. The parents of the child stated that they had noticed that the boy had a temperature about two weeks before they brought him to the doctor. He had complained of sore throat and aching, seemed to have a slight cold and they thought he had influenza, but when his fever continued and an enlarged gland appeared under his arm, they decided to bring him to the doctor. When we examined the

child his temperature was normal, there was a slight enlargment of posterior cervical glands in neck and axillary glands. His throat was negative. The child was feeling good and his parents considered him well. However, his blood, examined twenty-three days after parents noticed that he was ill showed the following: R. B. C. 3,070,000; W. B. C. 14,000, polynuclears 48%, mononuclears 52%. On comparison the blood picture was identical with that of the other patient. Specimen reported negative for tularemia and undulant fever by National Institute of Health, Washington, D. C.

DISCUSSION

These two cases will serve as a suitable text for some brief comments upon acute infectious mononucleosis, a disease concerning which our knowledge has been vastly increased during the past few years.

Historical. This symptom complex which has grown into a distinct clinical entity, is not new, for Pfeiffer described it in 1889, as glandular fever. Nor is it yet so old, for Sprunt and Evans re-discovered it in this country in 1920 and offered the new name, "Acute Infectious Mononucleosis." To Turk should go the credit for reviving interest in the condition for he made the first reports on the abnormal blood picture in 1907. In 1921 Tidy and Morley drew attention to the clinical similarity of glandular fever and acute infectious mononucleosis and suggested that the two diseases were identical. At the present time it is generally accepted that glandular fever and acute infectious mononucleosis are one and the same and that they are a distinct clinical entity.

Incidence of the Disease. The disease is undoubtedly more common than has been generally supposed. Where routine blood smears are made, it is more frequently discovered. It occurs in sporadic cases and in epidemics, both in children and young adults. Children are no doubt more easily affected than young adults and persons past middle life rarely develop the condition, at least clinically. Sex probably has little influence though more cases have been reported among males. Only one case has been reported among the colored race.

Nature of the Malady. The etiology of infectious mononucleosis is unknown. The influenza bacilli and the fusiform bacilli of Vincent have been mentioned as etiologic agents, but with none of these has a claim for specificity been established. For the past twenty years attention has been focused on this disease because of the interesting blood abnormalities, i.e., an absolute and relative increase of the lymphocytes in response to infection rather than the usual increase of polymorphonuclear leucocytes. Why is there this response of the lymphocytes to an apparently infectious process instead of the polynuclears? Let us recall that a lymphocytosis with elevation of the total leucocyte count occurs quite constantly in whooping-cough. It occurs also in certain cases of many other disorders, among which are scarlet fever, smallpox, syphilis, acute throat infections,

etc. It is not due to some toxin, depressing the bone marrow for cases of infectious mononucleosis have been injected with non-specific protein an increase of polynucleus have resulted. Does this lymphocytic response have a definite function? Is it to combat some specific toxin which is found in acute mononucleosis? With the pathology of the disease insufficiently studied, these questions cannot be answered. Like the etiology of the disease, it is unknown. However the affected glands show a hyperplasia of the lymphoid cells, which may be so marked as to observe the architecture of the node, and it is probable that this lymphocytosis is not significant of more than acute nonsuppurative hyperplasia of lymph nodes.

Clinical Course. The course is usually protracted and extends over two to four weeks. The modes of onset because of their great variability embodies one of the chief difficulties in diagnosis. The onset may be so insidious and the symptoms so mild that the patient never stops work, or it may be sudden with chills and fever. In one case the symptoms may point to the throat, in another case they may be entirely abdominal with pain. Headache, swollen glands, nausea and vomiting, abdominal pain, cough, coryza, sweating and stiff neck are often complained of but the symptoms may be any associated with an acute infection. In the child reported the parents did not consider him sick enough to consult a physician until they found the enlarged gland. While the physician was acutely ill and very uncomfortable with high fever, drenching sweats, sort throat, nasal obstruction and neuritic pains. The symptoms decrease and disappear gradually by (lysis). The glands may remain enlarged after the patient is back at work.

Laboratory Findings. The blood picture is the single most important diagnostic feature of the disease. The red blood count and hemoglobin are normal. There is usually a moderate leucocytosis rarely above 20,000 per cu. mm. In the early stages of the disease or during convalescence the total number of leucocytes may be normal, the diagnostic features showing only in the differential count. The key to the blood picture lies in the lymphoid cells, which may comprise from 40 to 75 per cent, or more of the total white blood cells. This lymphocytosis is characterized by a large number of atypical lymphocytes, which are different from true monocytes or the lymphoblasts observed in lymphatic leukemia accompanying the relative and absolute lymphocytosis is a decrease in the percentage and absolute values of the polymorphonuclears. In addition to the blood, the urine may show a mild albuminuria and hemorrhagic nephritis has been reported in a few cases. Several reports in the literature lay great stress on throat smears and the finding of the fuso-spirochetal group but that this, if of any particular significance, is to be doubted. For they are found in so many normal healthy mouths that it is probable that they are secondary invaders. Also cases have recently been reported

who were taking active leutic treatment consisting of arsenical injections when they developed acute infectious mononucleosis.

Differential Diagnosis. The disease may simulate many other conditions. No doubt cases are diagnosed influenza and there is the record of a case with pain and tenderness in abdomen, nausea and vomiting, in which the abdomen was opened for acute appendicitis only to find enlarged mesenteric glands. The main differentiation is from those diseases which may present one or more of its cardinal points. The sore throat especially if there is a membrane may cause it to be confused with diphtheria, scarlet fever, Vincent's angina, septic sore throat or agranulocytic angina. The enlarged glands and spleen may present a picture simulating typhoid fever, Hodgkin's disease, tuberculous adenitis or tularemia. The lymphocytosis may cause it to be confused with whooping cough, leukemia or undulant fever. The majority of these conditions can be ruled out at once by their characteristic clinical and laboratory features. From the practical standpoint the most frequent confusion arises in the clear differentiation of acute leukemia. Acute leukemia is more severe, there is a marked tendency to hemorrhage, the throat lesions are ulcerative and necrotic, there is rapid anemia, there is a marked increase in the lymphocytes. However, the blood picture is confusing for the atypical lymphocytes of infectious mononucleosis are not so easily differentiated from the pathological lymphocytes of acute leukemia and it is only by careful and repeated studies of the blood and by careful observation and other features of the case that a definite conclusion can be reached. And even then the diagnosis often remains in doubt during the early stages. At the onset of the cases reported the symptoms are very suggestive of influenza. The enlargement of the lymph gland in the physician's axilla together with the history of the little boy, brought tularemia under consideration, and when the blood was examined, acute leukemia appeared as a possibility and it was only as the case advanced and different possibilities were ruled out by careful clinical observation and further blood studies that a positive diagnosis could be made.

Prognosis. The patient always recovers. This is important. For Turk, on examining the first blood in infectious mononucleosis, pronounced it acute leukemia and gave such an utter hopeless prognosis that he was discharged from the case and to add to his chagrin, the patient promptly recovered.

Treatment. There is no specific treatment, it is entirely symptomatic. In the physician's case non-specific protein, sodium cacodylate and neoarsphenamine were used with no apparent effect on the course of the disease. Neoarsphenamine is recommended in the literature, probably because of the frequent association of the fuso-spirochetal organism, but it is probably only helpful through the tonic effect of arsenic.

DISCUSSION

Dr. O. C. Hansen (Durham): I was very much interested in both of these papers. I should like to discuss them in the order of their presentation.

First of all, I was very much struck with the excellent presentation of the subject of the clinical course of the disease known as agranulocytosis or malignant neutropenia, or whatever you may call it. When we speak about malignant neutropenia we are simply enumerating a symptom. Whether we are dealing with a true disease or not, I am not prepared to say, although a considerable amount of work has been done recently which points towards the fact that there are certain agents which will produce in animals a hematological condition very much like the condition observed in the clinical disease known as agranulocytis angina.

The bone marrow is not uniformly that of an aplastic bone marrow.

Sometime ago I had the opportunity to look over the pathological reports on a series of about sixty-five cases which had been reported in the literature up to 1929 and, roughly, seventy per cent of the bone marrows studied were either hyperplastic bone marrows or perfectly normal bone marrows. By that I mean there was no obvious deficiency of granulocytes. Fisher's recent work, however, shows that in some cases of agranulocytic angina that died and came to autopsy the bone marrow showed liquefaction.

It seems to me this is a very important feature because in individuals in whom the bone marrow has not been infected the outcome we can hope for is a very much better one than in those in whom there is no myeloid bone marrow, and I wonder about the individual of the first type, that is, the individual who for some reason or other has deficiency of circulating granulocytes but a perfectly good bone marrow.

I might just mention some work which is being done at present by some medical students at Duke University, Mr. John and Mr. Hare, under the direction of Dr. Smith.

They were able to produce a deficiency in circulating polymorphonuclear leucocytes in rabbits by the injection of the toxin, filterable toxins of staphylococcus. I believe it was the staphylococcus aureus which was used, and this deficiency was usually preceded by a rise in leucocytes. At autopsy these rabbits showed hyperplastic bone marrows.

Then recently, within the last year, there appeared in the literature some work by a man named Dassin and another man whose name I have forgotten at present, from Australia. They carried on some more or less similar studies and they were able to produce lesions in these rabbits by the use of leucocytic substances. There were again filterable staphylococcus, and the severity of the lesion was proportional to the leucocytic efficacy of the toxin. That is, the lower the leucocytoxin, the more severe were the lesions.

That is very much like what we observe clinically.

The disease is really a most dramatic one and very distressing as far as its outcome is concerned. Therapy as Dr. Shelbourne has so aptly said is as yet far from satisfactory.

I should like to say the differentiating diagnosis is not always clear and particularly is there difficulty in these cases from acute leukemia. As a matter of fact, Dr. Saffin, of the Rockefeller Institute, up to two or three years ago denied the possibility that these cases were anything else but acute leukemias, acute lymphoid or myeloid leukemias, with low leucocyte counts. And there is no doubt that certain of the acute aleukemic leukemias of the myeloid type have a great tendency to secondary infections, and if they develop them they may have leucocyte counts which are apparently low.

That was very well covered by the article of Dr. Perry Pepper from Philadelphia in the *American Journal of Medical Science* I believe for 1927.

So that the first thing which has to be done is to—of course this is of no interest in the patient if he has an acute myeloid leukemia because that patient is going to die anyway—is to settle from the academic standpoint the differential diagnosis.

It is said in agranulocytosis the tendency to hemorrhage is very low. That isn't always true because it depends a great deal upon the site of the infection. It is said that in aleukemic leukemia with low leucocyte counts there is a greater possibility of gouty symptoms.

That was pointed out by Dr. Pepper as a very important differential diagnostic point. I have never seen it. I can't tell you much about it.

The treatment will depend a great deal on the state of the patient. First of all it should be, of course, symptomatic, as Dr. Shelbourne has said. The patient's general health should be maintained as well as possible.

Transfusions I don't believe are any use whatsoever as far as the final outcome of the disease is concerned, for this very simple reason: agranulocytic angina is not a disease which requires red blood cells, nor does it require hemoglobin, and it has been a very hopeless thing in my experience to try to increase the total number of circulating leucocytes by the introduction of heterogenous blood. You might accomplish this: you might stimulate the bone marrow by repeated transfusions as has been suggested so often.

If one could inject leucocytic extracts or transfuse individuals with large numbers of leucocytes I believe that would be a more rational therapy, but you have to do something.

The stimulating doses of X-rays to the bone marrow also have been suggested by many clinicians. But there is always this danger: that the dose might not be a stimulating one but one that is just strong enough to throw the bone marrow activity over to the negligible area.

Finally, with regard to the use of these nucleotide products, as you saw, the analysis presented by Dr. Shelbourne, coming from writings of Taussig and Doan, states that the nucleotides are effective. I believe they are. At least, they are more effective than any other thing which we might try, and there is a perfectly good experimental reason. Doan has been working for a great length of time on the stimulating action of nucleic acid. Well, I hope it works. It has worked in the case of a few patients whom we saw. In others, it was of no use whatsoever. But this is the very important point about it: if you make up your mind to use nucleotide it has to be used constantly and in large amounts. That is, it has to be used frequently enough. There is no use giving just small amounts. It must be used frequently as Dr. Shelbourne has stated. It has to be used as long as the patient is able to take it.

Finally, I should like to say a few words about the paper of Dr. Boney.

That is also a very interesting subject, the question of infectious mononucleosis. I don't personally, believe that there is a better term than acute infectious mononucleosis, as distinguished from acute benign lymphoblastosis, the term introduced by Downey some time ago. The reason for it is very simple. It enables you to separate the cases of infectious mononucleosis from those of acute benign lymphoblastosis by accurate determination of the circulating leucocytes. In infectious mononucleosis you have mononuclear leucocytes, in the other lymphocytes, lymphocytes which in many cases, as Downey pointed out, are immature and abnormal.

Acute infectious mononucleosis is not a disease, it is a symptom, that might have for its cause a multitude of factors. It is observed as Dr. Boney said following arsphenamine therapy.

Acute benign lymphoblastosis is another question. Those cases reported by Dr. Boney are acute benign lymphoblastosis—there is no question about it. And that is a real disease entity.

The clinical course has been very aptly described. There is nothing to add to it. It is just about what you saw.

As to the cause of acute benign lymphoblastosis there has been some very interesting work done on that, particularly by Nefelt, who was able to isolate from the circulating blood of one individual a bacillus, which fermented, and which could be agglutinated by the serum of an individual convalescent of acute benign lymphoblastosis.

That is one organism which has been blamed for the disease.

Then recently it has been suggested that we are dealing here with a virus disease. Well, of course, it is not exactly a virus disease. The immunity conferred by it has not been very well determined.

There are cases, as Dr. Boney said, which are chronic, others which are acute. Again a differential diagnosis is most difficult and I should say that it is impossible in the early stages of an acute, violent attack of acute benign lymphoblastosis. Anyone who would dare to make a differential

diagnosis between acute leukemia and acute benign lymphoblastosis in the first five days of the disease would really be treading on very thin ice.

Both diseases are characterized by fever, both by sore throat; both have glandular enlargement. In both there is lymphoblastosis which is absolute and positive, and in both there are lymphoid circulating bodies in the blood stream.

It is true in acute leukemia there is a tendency to hemorrhages. There is a tendency to anemia, but there is really no absolute law which the disease follows. You might some day see cases of acute leukemia without anemia developing very rapidly.

The differential diagnosis is easy enough after the first ten days of the disease, when the physician has noticed that there has been no increase in the number of circulating leucocytes, and, again, that there has been no marked decrease, because both of them would of course be suggestive of leukemia, and, second, that the polymorphonuclear leucocytes reappear in circulation in increasing numbers; third, that anemia has not been produced, or very slight anemia; and, fourth, monocytes appear in the circulating blood, large monocytes. They always appear during the convalescent stage of acute benign lymphoblastosis.

The treatment is simply one of watching the patient. That is all you can do. You can visit the patient as frequently as you wish. There will be very little change if he has an acute benign lymphoblastosis. But this much you can tell him at the end of the tenth or the fourteenth day of the disease, that he is going to get well, which is much more than you can do when you are dealing with acute leukemia, of course. (Applause)

Chairman Whitaker: Both of these papers are now open for further discussion.

Dr. C. H. Cocke (Asheville): The subject of agranulocytosis has interested all of us who have had the rather terrifying experience of going through it.

As has been pointed out by both of the speakers, the term is very much of a misnomer particularly etiologically because it means the absence of something. It is too bad that the word was ever coined by Schultz, I think, some eleven years ago. At any rate, I am going to report a case. I can't add anything to Dr. Shelbourne's and certainly not to Dr. Hansen's very interesting discussions, but this case will refute some of the things that they have said.

The only case that I have ever treated—I have seen two such cases—occurred in the course of pulmonary tuberculosis, and after seeing the paper of Dr. Perry Pepper, I asked him if he had ever seen, or heard, or knew of such a case occurring anywhere in the literature.

This was the case of a young man of twenty-eight who had been under my care for some time. He had undergone artificial pneumothorax therapy for advanced tuberculosis.

Some three weeks previous to the occurrence that I am about to relate the re-fill needle, which was just a twenty-gauge, small inch and a half or two inch hypodermic needle, was lost in the muscles of his chest by a sudden jerk and after some effort we had to finally take him to a fluoroscope to locate this thing and take it out, not that it ever did any particular damage. He was not under the fluoroscope for any great length of time, but some three weeks later he had a sudden attack with gastric symptoms predominating, just as Dr. Shelbourne's case did. And finding no pathology there on physical examination we did a routine leucocyte and differential count, and I was quite surprised to find that the leucocytes were below four thousand with only seven per cent granulocytes or polymorphonuclears present.

He rapidly lost those. He had a very fulminating type of temperature, 104° to 105° F., and was extremely ill.

It was only after we got the leucocytic picture that we got any story from him of his throat. The throat never went on to a phlegmonous pharyngitis but it was intensely red and never had any exudate on it as far as we know. We did get a staphylococcus from the throat.

As both of the speakers have said, this is a dramatically interesting and terrifying thing and you have to do something particularly if the family is over-anxious as they generally are.

We resorted to transfusion and then supplemented that by radiation, stimulating radiation over the long bones. After the second transfusion and several radiations we finally, after a solid week in which there was not a granulocyte present that we could find, saw a gradual slow return. At the end of three weeks the temperature had returned to normal and the young man made a complete recovery from the episode, whatever you wish to call it.

I think that this is a very unusual state of affairs. Whether this was a case of true so-called agranulocytosis, I am not prepared to say. It was certainly a malignant neutropenic state.

Like the essayist I think we owe it to our patient, where there is acute manifestation that even mildly suggests the doing of routine blood counts, to do a blood count. It is very much in order in my opinion. Then we will pick up a great many of these things. And I think possibly the hope offered by the work of Jackson and Doan and these other people who have worked with the pentose nucleotides is very much more encouraging than anything else I know of. Unfortunately that work had not come out when I treated my case as this was two years ago that I saw this man. (Applause)

Chairman Whitaker: Is there any further discussion?

Dr. S. W. Davis (Charlotte): I was very much interested in Dr. Shelbourne's paper and am quite in agreement with him in the feeling that the necrotic gangrenous area so often found in the mouth and pharynx is not the cause of the disease but rather the result of the

disease. This view has certainly been emphasized by Kracke and Roberts. The pathological findings are more of an overwhelming toxemia focusing activity on the bone-marrow.

All fulminating cases do not show this finding, because it has been pointed out that there is not only a diminution or an absence of the granulocytes but there is also an actual lowering—while there is a relative increase in the lymphocytes and monocytes, there is an actual decrease in this cell element.

In regard to this condition there is a difference in view held by some authors, particularly Fitzhugh and Krumbar of Philadelphia. Instead of there being a complete aplasia of the bone-marrow, (which is substantiated by the fact that the bone-marrow or forming organs producing the red cells and also the thrombocytes are maintained in these cases) or fulminating agranulocytosis, Krumbar and Fitzhugh are of the opinion that rather than there being an aplasia there is a maturation factor that is deliberated by migration into the blood of the granulocyte or the granuloblast.

There are interesting things in connection with the therapeutic views that are held.

I notice that Dr. Shelbourne in his cases has used transfusions, stimulative X-ray doses, and also the nucleotides.

I have seen one case where there was complete absence of the granulocytes respond to daily blood transfusion and make a complete recovery, whereas another case I saw responded to the use of only the nucleotides.

I think that we have to determine exactly what course we are going to proceed along and stick to that course, rather than use a mixed therapy.

An interesting factor also is that certain drugs, particularly the benzine ring, have an inhibiting factor on the granular series. This has been particularly noted in benzine poisoning, in the case of workers in rubber plants, and so on.

It has also been pointed out that there is a reduction in the number of granulocytic cells in certain cases in which neoarsphenamine is being administered. Recently in Charlotte, McKay and McKay pointed out such a case.

I am wondering if such a case isn't one in which there is a pre-existing factor that has brought about that agranulocytic condition, rather than the condition being produced as a result of the treatment with neoarsphenamine.

I have also seen certain cases respond to the administration of small doses of neoarsphenamine.

I particularly remember one case that came under my observation, an elderly woman who had what appeared like a chronic case of agranulocytosis. She received an injection of 45/100 grams of neoarsphenamine and following this injection there was an immediate response of the granular cells.

Dr. T. R. Taylor (High Point): I have by force of necessity been compelled to study these two conditions more intensively in the last three weeks than in all the rest of my life put together, because of a very remarkable case that came under my observation.

An apparently outstanding healthy young married woman that I could find nothing wrong with in any internal medical examination was referred to a gynecologist for an investigation because of an apparent sterility.

I was out of town some three weeks ago. She developed for three days a mild disturbance characterized by epigastric soreness which was slight, slight nausea, no vomiting, slight sore throat, slight tenderness, and no fever and no glandular involvement. And all the symptoms cleared up in three days.

She then went to see the gynecologist on account of this sterility, about a week later. A routine blood count showed the hemoglobin and red cell count and the white cell count normal. I have forgotten what the white cell count was exactly—between seven and eight thousand—but she had ten per cent polymorphonuclears.

Of course, that stopped all further proceedings in investigating the sterility. She was referred back to me and for nearly three weeks I have had her under observation and have had counts of fifteen per cent, twelve per cent, seventeen per cent, and then in a week's interval there was a jump to forty-four per cent.

I did not have the oxidate stain, but there was an apparent qualitative improvement in the neutrophils, as well as a quantitative improvement.

The early slides with a very low granulocytic count showed no granule staining in the frankly typically polymorphonuclear cells. I thought this was due to defective staining until when she jumped up to forty-four per cent I found that some of the polymorphonuclears had beautifully stained granulars, and others in the same slide didn't take any stain at all in the cytoplastic granules, if they were there. They appeared to be devoid of neutrophilic granules.

Just the other day this patient played a very fast set of tennis with perfect immunity. She seems to be perfectly healthy. She has no fever, no enlarged glands, no enlarged spleen, no hemorrhages, no symptoms at all. She is normal, except for this blood picture.

I wrote Dr. Christian of Harvard about her, and told him I didn't know whether to take her very seriously or not. I didn't want to hang a shadow of possible sudden fatal outcome over the family, or anything of that sort, if it wasn't necessary. He wrote back that he couldn't explain all her symptoms but he certainly wouldn't cross any bridges before he came to them, that a great many of these bridges were never reached.

Then I happened to see Dr. Doan's article in, I think it was the July 6, 1932, *Journal of the American Medical Association.* I couldn't find any reference to such a condition in the textbooks. That article considered not only agranulocytosis and infectious mononucleosis or glandular fever,

whatever you want to call it, but even considered the possibility of pancreatic mumps.

When I found Dr. Doan's article I wrote to him and got a reply from him yesterday. He seems highly suspicious of the possibility of an aleukemic leukemia, but in view of the fact that the patient has been under observation for three weeks and takes rather violent exercise and appears to be in the pink of physical condition, I confess that I can't see it. I may be wrong, but I certainly hope I am not in this case.

I should like very much in the closing of this discussion to hear some comments on what the various possibilities are to be considered here. Personally, from a clinical standpoint, I cannot convince myself at the present time that this patient is sick. I realize she may get an infection that may produce a devastating effect and a typical agranulocytic angina, but Doan has pointed out that there are two groups of these patients. Some of them appear to have exhaustion of bone-marrow and don't react to infections. Others will have a leucocytosis when a septic infection comes along and fight it as well as anyone else.

Curiously enough, the only other case I ever heard of was in a nurse who about six months ago was operated for gall-bladder disease. Not much was found on operation—she was not my patient. I don't know the symptoms preceding the operation. Her poly count dropped to five per cent, but she had a low white count. She dropped down to two thousand. They gave her liver extract and she is back now with a normal count, about nine thousand white cells and sixty per cent polys and is working every day as a graduate nurse. (Applause)

Chairman Whitaker: Is there any further discussion?

Dr. J. T. Taylor (Greensboro): I have had three of these cases, and I want to say that if we could get Dr. Shelbourne's presentation to the dentists and to the otorhinolaryngologists, they could probably assist us more than anyone else in early diagnosis of this thing. All of my cases had been treated previously, before falling into my hands, by dentists. They all of them had had treatment for trench mouth, Vincent's angina, or otherwise.

I have one patient who is now under my care that I think fits in pretty well with Dr. Taylor's patient that he has just described. This patient has had a second attack, that is, a second acute exacerbation. She has gone for three months between exacerbations.

I noticed a recent article by Jackson, I think, in which he gives an account of a similar case where the decrease in the blood count, the lowering of the white blood count, is associated with the catamenia, menstrual periods, and he goes so far as to say that he predicted the approaching acute attack from one period to another.

I wonder now if that fits in with Dr. Taylor's case.

CHAIRMAN WHITAKER: If there is no further discussion of these papers, I am going to ask Dr. Shelbourne to close the discussion on his paper, please.

DR. SHELBOURNE: In regard to transfusions, few favorable reports have been made. The case discussed which recovered following daily transfusions is interesting. I have seen in the literature five or six cases which have recovered following transfusions secured from donors who had apparently recovered from the disease. I think this point should not be overlooked.

With regard to the bone-marrow pathological findings, I might say that Kracke and Jackson have both taken specimens from fulminating cases showing a rather marked aplasia on the bone-marrow during the acute condition, and in the same patient, after recovery, have found a normal bone-marrow. This appears to indicate that aplasia of the bone marrow certainly develops during the illness.

With regard to the patient with tuberculosis who recovered from agranulocytosis others have reported rather similar cases. In one case recovery was attributed to the use of calcium gluconate, which drug I think has probably been used for every known disease. In another case recovery was attributed to a concurrent pneumonia. It is most likely that neither tuberculosis, pneumonia nor calcium gluconate aided materially in the recovery of these cases.

Liver extract and pentose nucleotides are being used at the present time by mouth in the treatment of this disease, which appears to be rather logical.

We understand that Dr. Smith of Duke University has produced some typical lesions of agranulocytosis on the mucous membranes of rabbits with a culture of staphylococcus hemolyticus secured from Case 1 in this report.

DIAGNOSIS OF TUBERCULOSIS IN INFANCY AND CHILDHOOD

By DR. J. BUREN SIDBURY, Wilmington, N. C.

I

There is a tendency on the part of the pediatrician, as well as the general practitioner to consider tuberculosis in children as well as in adults a problem for the tuberculosis specialist. One of the objects of this paper is to disprove this idea. I do not wish to minimize the importance of the tuberculosis specialist, but wish to show how much more effective his services may be if the general medical man will do his part in this big fight against the White Plague.

Naturally the general practitioner is going to see the majority of the early cases of tuberculosis, whether he diagnoses them or not. Now, my point is to show how he can pick up these early cases and either start them on the right treatment himself or refer them to the tuberculosis

specialist where proper treatment may be started early and open pulmonary tuberculosis prevented.

How can the general practitioner do this? This can be done by his carrying out three definite and simple routine procedures. First: Do a complete, careful physical examination, which may show nothing abnormal. Second: Do an intradermal tuberculin test as a routine for a *complete* physical examination, especially on all children under weight, anemic, languid or who run an unexplained temperature. Third: If this tuberculin test is positive, have an X-ray of the chest made. If you are not or do not feel competent to interpret these X-rays, you may have them interpreted by your local X-ray man or send them to Dr. McCain at the N. C. State Sanatorium, who has generously offered his expert services, than whom there is none better, to help you with the final diagnosis. I wish to ask if this routine is not within the reach of any and all of us, whether specialist or not?

In Wilmington in 1932 a number of physicians in conjunction with the local Health Department and school authorities did tuberculin tests on the school children of New Hanover County. Those who were positive reactors were X-rayed and the plates were sent to Dr. McCain for developing and interpretation. The results of the study follow:

School	*No. Children*	*No. Tested*	*No. Positive*	*No. Negative*	*No. ?*	
Hemingway	612	277	64	210		
Delgado	259	164	58	71	32	
Tileston	968	420	77	300		
Isaac Bear	687	216	57	125	27	
Forest Hills	302	114	33	55	16	
Cornelius Harnett	261	108	33	64	6	
Wrightsboro	377	195	46	110	30	
William Hooper	635	272	39	209		
Sunset Park	205	129	20	107		
Bradley's Creek	237	147	16	130		
Winter Park	308	170	21	143		
Myrtle Grove	94	50	10	33		
High School	1585	529	141	365	4	
St. Mary's	116	80	15	65		
	6646	2871	632	1987	115	217 not read
		43.2%	22.1%	69.2%		

The only specialist in tuberculosis who assisted in this study was Dr. McCain, who interpreted the plates for us at the North Carolina State Sanatorium. His interpretations were turned over to the family and their private physician, who then assumed responsibility for after-care.

II

TUBERCULIN TEST

This test is done in the same manner as the Schick test. It is advised that the first test be made with one hundredth of a milligram of standard-

ized old tuberculin diluted to .1 cc. The cite of injection is examined after 48 hours and if no reaction is shown, one tenth of a milligram is given in the same volume. Should no reaction follow this injection in 48 hours, one milligram may be given in the same way. It is very seldom that a positive reaction requires the injection of one milligram before showing a reaction. The reaction is positive if redness and edema are present at the end of 48 hours. If there is no edema the reaction is negative. The reactions are arbitrarily read as one (+) plus to four (+ + + +) plus. The intensity of the reaction is usually an index of the severity and size of dose. A one (+) plus reaction is a definite edema, elevated about 1 mm. and not more than 10 mm. in diameter. The redness may be much larger. A two (++) plus reaction should measure 10-15 mm. in diameter and be elevated about 1 mm. or a little more, with redness beyond the swelling. A three (+++) plus reaction shows edema measuring more than 15 mm. but no necrosis of the skin and may show some lymphatic involvement radiating from the injection. A four (++++) plus reaction shows extensive edema, redness and a spot of necrosis. Malaise and elevation of temperature may be associated.

The intradermal tuberculin test is much more accurate than the Von Pirquet or other tests in that it delivers a definite amount of tuberculin in the skin which must be absorbed and cannot be rubbed off.

Hamburger and Mont tested 509 children. 35.5% reacted to the Von Pirquet test and 53% to the intradermal test. Austrion found children who reacted to .01 Mgm. of tuberculin by the intracutaneous test who were negative to the Von Pirquet test.

McPhedrin states that in families with sputum positive cases 80% of family contacts gave a positive intradermal test when only 20% gave a positive reaction in the pre-school age. As a result of his (McPhedrin's) X-ray examination of children living in houses with sputum positive cases 19.7% were found to have demonstrable tuberculosis of the tracheobronchial type while in his control group only 4.3% showed these lesions.

Diluted tuberculin, 1-1000 or 1-100, may be obtained from the Gilleland Laboratories, Marietta, Pa., for the price of $1.00 for 10 cc., or from the North Carolina State Sanatorium. This is best kept on ice and will remain potent from two to six months. I have a specimen of diluted old tuberculin two years old which has been kept off of ice for ten months. It is still as potent as when first diluted.

Most physicians have access to a drug store which has a refrigerator. The tuberculin can be kept there and sent for when needed.

As to the amount to be injected, it does not matter so much about the quantity injected, just so you inject as much as .1 cc. If more is injected, say twice or three times that amount, there is no danger associated. For instance, when diluted tuberculin (1-1000) is used, you are supposed to inject .1 cc. If three times that much (.3 cc.) were injected it will not be dangerous to the patient. It might give a four (++++) plus reaction

instead of three (+++) plus. This will not alter your interpretation of the case, for an X-ray of the chest should be taken as a further study in any event.

Here I think it might be well to define "tuberculous infection" and "tuberculous disease."

Tuberculous infection is a state of being infected. The body is harboring the tubercle bacilli but the body tissues are not altered any or materially by the presence of the organism.

Tuberculous disease is "an alteration in the state of the body or of some of its organs, interrupting or disturbing the performance of the vital functions and causing symptoms"—Morse. In tuberculous disease the presence of the tubercle bacilli has produced more or less pathological change in the surrounding cells. This may be slight or may progress to the destruction of tissue and cavitation.

A negative tuberculin test may be had in the following:

1. In uninfected persons.
2. In acute tuberculosis infection with severe constitutional symptoms.
3. During the period of incubation.
4. During the advanced stage of tuberculosis.
5. In patients treated with tuberculin.
6. During contagious diseases the reaction may disappear.
7. Unexplained conditions (4-8%).
8. In healed tuberculosis lesions.

THE INCIDENCE OF INFECTION

Morse says we are born free of tuberculosis, but that in Boston "At the end of first year 10% are infected and at 16 years 90% are infected, but very few have tuberculosis diseases."

In Philadelphia—

37.7%	infected at 5 years	McPhedrin
71 %	infected at 10 years	
81 %	infected at 15 years	
90.2%	infected at 18 years	

In Philadelphia 10% of school children show tuberculosis infection.

In North Carolina—Dr. McCain—

Of 99,653 tested with (.1 cc 1-1000 K. O. T.)

15.22 % whites gave positive reaction.
18.17 % colored gave positive reaction.
Total reactors 15.7%.
10.35 % of positive reactors diagnosed tuberculosis.
1.62 % of total number tested diagnosed tuberculosis.

Of 1,619 diagnosed tuberculosis.
1,459 were childhood type.
88 were adult type.
44 were childhood and adult type.
22 were extra-pulmonary type.
6 were extra-pulmonary and childhood type.

10.92 % of reactors classified as suspicious.
1.72 % of all tested classified as suspicious.
1.42 % of whites diagnosed as tuberculosis as compared with 2.60% colored.
9.36 % of whites positive reactors diagnosed tuberculosis as compared with 14.54% colored.

III

LOCATE THE CONTACTS

Tuberculosis in infancy tends to run an acute course. During the first six months there may be a rapidly spreading pulmonary consolidation with associated enlargement of medeastinal and hilium glands with a terminating miliary tuberculosis or tuberculous meningitis. McPhedrin says that with each six months until the end of the second year the lesions are less violent. In these cases if the contact can be stopped ultimate recovery is quite possible.

The source of infection is always some sputum positive contact which is handling the child and every effort should be made to locate this contact as soon as possible and the contact stopped. Locating the contacts is equally as important as making the diagnosis in the patient. We now know that we have many cases of infants who have recovered from tuberculous consolidation of the lung who have made complete recoveries simply and solely because the contact was abruptly stopped as soon as the diagnosis was made. One such case in my practice is R. G., 14 months old, who came to see me in 1928 because he had an enlarged left ring finger (dactylitis). He was over-weight, 24 pounds, his color good, no temperature, appetite good, clinically well. He had a mother who had been treated at the North Carolina State Sanatorium for pulmonary tuberculosis and was advised not to marry some two years before. He gave a four (4+) plus Von Pirquet test. An X-ray of his chest showed a consolidation of his right upper lobe and a dactylitis of left ring finger. He was given a bad prognosis and referred to Dr. McCain at Sanatorium who confirmed the diagnosis and gave a similar prognosis.

Fortunately for the boy his mother soon succumbed to her infection. He made a complete recovery, as shown by the X-ray of his chest in 1931 and in 1932. He is now six years old and looks the picture of health as he stands here on the stage. He is going to school. He is doing excellent work in school. Our diagnosis in the case was correct. I am happy to say that our prognosis was incorrect, but only because the contact was abruptly stopped.

A second case seen with Dr. Eric Bell of Wilson is reported here because it emphasizes the value of X-ray in the study of these cases. If an X-ray had not been taken of this case a correct diagnosis would not have been made. The X-ray was seen by me before seeing the child and a tentative diagnosis of miliary tuberculosis was made. The case history follows:

Spontaneous delivery. No previous illness. Breast fed until three months of age, then given cow's milk, grade A, tuberculin tested; milk boiled three minutes before using. Took orange juice and cod liver oil since three months of age. February 26, 1933, Dr. Bell was called to see child. At that time had temperature 103, pulse and respiration were unusually rapid. Physical examination essentially negative except moist rales throughout both lungs, anterially and posteriorly, with some impairment of resonance on right side. Urine negative. Diagnosis of bronchopneumonia was made and treated accordingly. March 1, 1933, developed acute otitis media (double), temperature 105. Both ear drums punctured. Temperature came down to 102 and 103. March 4, 1933, temperature went back to 105. Right ear re-opened. March 6, 1933, child very toxic, moderately dry, was given 200 cc. of 5% glucose intravenously. March 7, 1933, left ear re-opened, hacking cough developed, with marked dysponea, pulse very rapid and feeble. March 7, 8 and 9, 1933, saline given intraperitioneally. March 10, 1933, X-ray of chest taken. March 13, 1933, second X-ray of chest taken at request of Dr. McCain. March 10, 1933, blood examination shows WBC 33,200, RBC 3,390,000, Hgb. 70%. March 11, 1933, tuberculin test 1-100 and 1-1000 was made on separate arms, both negative. Gastric content was examined for tubercle bacilli and found negative. Transfusion of 120 cc. of blood given, which apparently helped the child for 24 hours. Dr. McCain's interpretation of X-ray was: "Your patient has miliary tuberculosis without a doubt. The only thing that you can do is to keep it comfortable, the prognosis is bad." March 14, 1933, child died. No autopsy obtained. Since then the father, mother, two brothers and a sister have been tuberculin tested and all are negative. Child's grandparents and one uncle live in the same house and refuse to be tested. Paternal grandmother died of tuberculosis when the child's father was an infant.

It should become the duty of every medical man who finds a case of tuberculosis to study the contacts and protect those exposed to tuberculosis. A search for early cases of tuberculosis should be made by doing tuberculin tests repeatedly on all cases who have been heavily exposed. This is our responsibility just as it is our responsibility to protect other children in a house when diphtheria is found. Until we accept this responsibility we will not meet the situation as we should.

IV

LESIONS IN CHILDHOOD TUBERCULOSIS

Now, I wish to briefly and rapidly show illustrations of the following lesions found in tuberculosis of childhood:

1. Primary focus.
2. Childhood type—Tracheo-bronchial glands, either calcified or not.
3. Adult types—Pulmonary infection.

4. Miliary tuberculosis.
5. Tuberculous pneumonia.
6. Cavity formation.
7. Tuberculous peritonitis.
8. Cervical adenitis—Calcified submaxiallary gland.
9. Bone tuberculosis—Dactylitis.

V

SYMPTOMS OF CHILDHOOD TUBERCULOSIS

There are no characteristic symptoms. Those most frequently found are:

1. Under-nourishment.
2. Failure to grow and gain weight.
3. Lack of energy—does not play vigorously.
4. Nervousness, peevishness, irritability.
5. Delayed recovery from some other disease, as measles, pertussis, influenza without complications.
6. Fever may or may not be present.
7. Cough, repeated colds and hemophysis uncommon.
8. Often may be no symptoms and child be 5% or 10% over-weight.

Physical signs in childhood tuberculosis:

None characteristic.

1. Dullness.
2. Harsh breathing.
3. Increased whispered voice sounds.
4. Rales scattered throughout the chest.

} All found in non-tuberculous.

5. Infected tonsils, careous teeth, parasites, pyelitis and malaria may cause these signs.
6. X-ray most important.
7. More often no physical signs found and can be demonstrated only by X-ray and tuberculin test.

VI

RECOMMENDATIONS

1. All school children should be given the tuberculin test.

2. All nurses, maids or cooks should be given an X-ray examination of the chest.

3. All school teachers should be given an X-ray examination of the chest.

To quote from Charles Hendee Smith: "It must be remembered that 'the army of the tuberculous is recruited from those infected in childhood,' and 'phthisis is the last verse of a song the first of which was sung in the cradle.' These infected children, then, who carry tubercle bacilli in their

bronchial nodes or elsewhere, are the ones who need early, correct diagnosis. The Mantoux test provides the means of making it. It should be used on every child who is under-weight, anemic, or languid, or who has an unexplained irregular fever. These children with 'tuberculous infection' so called, have true incipient tuberculosis, latent or active. Their disease is generally in lymphatic tissue, where it is easily encapsulated and where scar tissue does no great harm. Under intelligent, watchful care they usually do well. When the disease has involved more important structures, such as the lungs, bones or meninger, the damage is greater, the cure is more difficult or impossible, and the diagnosis has been made too late."

Chairman Whitaker: Gentlemen of the Section, it is now time to nominate a chairman for next year, and the chair will entertain nominations for that office.

. . . Dr. P. A. Shelbourne was nominated and elected chairman of this Section for the 1934 meeting.

CONFEDERATE LABORATORY FOR PREPARATION OF MEDICINES NEAR LINCOLNTON

By L. A. Crowell, M.D., Lincolnton, N. C.

Many circumstances have served to obscure the complete history of the medical and pharmaceutical activities of the Confederate States Government. Fire and raids have left many large hiatuses, thus for the most part precluding a detailed statement based upon official records.

This brief article on one of the Confederate laboratories is largely based on reminiscences of old residents, although sufficient documentary evidence exists to serve as a framework for the material presented.

Since there were practically no drug manufacturing plants in the South at the outbreak of the War of Secession, the action of the United States Government in making medicines contraband of war added greatly to the sufferings of Southern soldiers and civilians and of Northern prisoners in the South. The small supply of drugs on hand, together with those smuggled, blockaded or captured, made up the sum total of available drugs during those four horrible years, except for those manufactured from indigenous plants.

For the purpose of manufacturing drugs from indigenous plants the Confederacy set up at least five medicine laboratories to augment the supply of drugs; one at Tyler, Texas; one at Macon, Georgia; one at Augusta, Georgia; one at Columbia, S. C., and one near Lincolnton, N. C. It is to this laboratory near Lincolnton that the remainder of this discussion shall be devoted.

This laboratory was built probably late in 1861 or early in 1862 on the right bank of the South Fork of the Catawba River, two-and-a-half miles south of Lincolnton, on the site now occupied by the Laboratory

Cotton Mill. It consisted of an oblong brick building, running parallel with the river. The brick were made by hand of clay dug from the river bank about three-quarters of a mile down stream, and burned by wood hauled from the surrounding hills. Local workmen did the major portion of the work. The machinery was operated by water power.

Surgeon A. S. Piggott, a short stocky Yankee, was director, and a man named Wizzell was his first assistant. These two collected and classified indigenous plants and superintended their conversion into forms convenient for administration. A plot of ground near the Laboratory schoolhouse, half a mile away, is known as Wizzell field. Surviving witnesses say that Piggott had a decided "Yankee brogue," attended the old white church in Lincolnton (used by both Lutheran and German Reformed congregations) and was a man having staunch friends and bitter enemies. Apparently Piggott was a Northerner whose Southern sympathies had caused him to migrate south at the beginning of the conflict and tender his services to the Confederacy. It seems that Dr. Piggott was very exacting, and this, combined with his being a Yankee, caused him to be hated by many, while, on the other hand, his fine traits of character and personality endeared him to many. He was married and had children.

Working under Piggott and Wizzell was a group of skilled and unskilled laborers, composed of men and boys too old or too young or unfit for active military service, loosely organized along military lines. Some say there were many Yankees among them. A Captain Brown was in charge of this military unit at first; later, when he was sent to the front, Captain Augustus Pinckney James succeeded him and remained the military officer in charge until the end of the war.

Little is known of the products of this laboratory. Apparently indigenous plants from a wide territory in western North Carolina were collected and taken there. According to Howell, the laboratory drew its crude drug supply from the mountains. He further states that Wilkesboro, Asheville and Statesville were collecting points, but does not state if all the plants collected at these points were brought to Lincolnton. Tinctures, extracts and syrups were among the preparations. Old residents speak of large poppy and sorghum fields in the vicinity at that time. The poppies and syrup from these were supposedly made into palatable opiates. The laboratory was closely guarded and no one remembers having been inside while it was in operation; but several speak of having seen through the windows crocks, bottles, machinery, books and glassware. I have, so far, been unable to locate any of these relics. One witness states that his father was a teamster and he saw him many times drive away from the laboratory with large wagon-loads of medicine, sometimes going toward Lincolnton and sometimes southward.

Toward the end of the war, as the Federal blockade became more completely effective, the demand for drugs greatly increased, and another larger building was begun. When the four walls of this second building

had been finished, before any roofing or woodwork had been done, the war ended, and the laboratory was abandoned. The original laboratory stood until 1886, when the greater portion was torn down to make room for the present Laboratory Cotton Mill, built by the late Daniel E. Rhyne. The four walls of the second laboratory building were incorporated into the cotton mill. The remaining portion of the original laboratory, a part of which is still standing, was for many years used as an office, later as a part of the mill store and still later as a storeroom. Now it is a storage room for junk.

Sic transit gloria mundi.

PUBLIC HEALTH AND EDUCATION

TUESDAY, APRIL 18, 1933

The meeting convened at 2:30 P. M. in the Manteo Room of the Hotel Sir Walter, Raleigh, N. C., Dr. Z. V. Moseley of Kinston, presiding.

CHAIRMAN MOSELEY: As Chairman of this Section on Public Health and Education, I have endeavored to prepare a short program but one that would be instructive and interesting. The speakers this afternoon are men who are widely known in their fields for their vast amount of experience and I am satisfied we will all benefit very much from their papers.

The first speaker today is a man who needs no introduction to us because he is no other than our own Dr. John Ferrell of New York City and of Clinton, North Carolina. The subject of his paper is "Qualifications for Health Personnel." Dr. Ferrell. (Applause)

DR. JOHN FERRELL: Mr. Chairman, Ladies and Gentlemen: Needless to say, I appreciate the Chairman's remarks, and I welcome an opportunity under any pretext to get back to North Carolina. I looked over the program and found my name at least three times and I am afraid I am going to fall into the classification of that group of doctors we know who are given to speaking on the slightest provocation.

The substance of the paper that I have this afternoon—it is really an abstract of the paper I presented in Chicago in February—relates to the subject of the professional training and professionalization of Public Health personnel. And when I speak of transition from the present to a plan involving professionally trained personnel, I hope none of you will feel that any of these things that may be discussed for the future will occur overnight. There have been many transitions and developments in the progress of civilization. As I stated elsewhere, the transition from the apprenticeship training in law and medicine has gradually led to a university type of training which now is universally accepted, but it did not come quickly. And those men in law and medicine who, in the school of experience, have acquired a working knowledge in their respective fields, were not let out of the field. The same will be true in the field of public health. Those men who have acquired a real capacity as health officers in the school of experience, who have demonstrated their ability to carry on the work successfully, are not going to be suddenly replaced by one without such successful experience who happens to have a professional degree in public health. The same holds true of sanitary officers and public health nurses. Before beginning to read what I have prepared for this occasion, I want that definitely understood, because in a discussion of professional education the impression might gain currency that the opposite was my view, and it is not.

QUALIFICATIONS FOR HEALTH PERSONNEL

John A. Ferrell, M.D., Dr. P.H., New York*

The question of establishing eligibility requirements for the personnel of public health organizations is being discussed by health authorities. Recognition of the importance of the subject led the American Public Health Association recently to convert a subcommittee on training and personnel into a major committee on professional education.

Professions, such as law, medicine, and dentistry, to protect the public against unqualified practitioners, established boards of examiners. The main question that arises in regard to public health is whether it is a separate profession or merely a specialty of medicine. If it is a new profession, has the time arrived for setting up eligibility requirements for its personnel?

Considering the variety of public health workers—health officers, sanitary engineers, statisticians, bacteriologists, chemists, nurses, and others—would it be feasible for one qualifying board, for example the National Board of Medical Examiners, if its scope were enlarged, to pass upon their qualifications? Should a qualifying agency be unofficial, as the National Board of Medical Examiners, or governmental? Should it be formed on a state or national basis? Would it be preferable for the qualifying board, instead of conducting examinations, to pass upon courses offered in public health by the various universities, and accept only the degrees of schools which meet certain standards? Or would it be sufficient merely to have appointing executives and boards of health decide on qualified personnel?

Let us examine the situation. During the past twenty years, through the trial and error method, a considerable amount of public health knowledge has been gradually accumulated. While this knowledge has been drawn primarily from the field of medicine, important contributions have come also from the fields of engineering, statistics, epidemiology, economics, and education. In the modern medical school the prospective health officer has been able to obtain sound training in anatomy, physiology, the various hygienes, and other subjects. It is exceptional, however, for a school of medicine to emphasize public health subjects, and therefore additional training in a school of public health is generally necessary for a physician desiring to qualify as a health officer. He must also have some practical experience.

University courses in public health have been given for many years in Great Britain. As early as 1886 it was required by law that diplomas in sanitary science be registered, and in 1926 such registration became a requirement for health officer positions in the United Kingdom. Eighteen months is now necessary to secure the diploma in public health: nine months of full-time university work, three months of service in an infec-

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tious diseases hospital, and six months of practical experience under a medical health officer. It is required that two years elapse between the medical registration and the registration of the diploma in public health. Great Britain gradually has built up a reserve of qualified health personnel so that eligibility standards for employment can now be enforced.

In all the Canadian provinces, with the exception of Alberta and Saskatchewan, the health officer, whose official title is usually Deputy Minister of Health, is required by law to be a qualified physician. In New Brunswick he must have also a diploma in public health. However, regardless of the existence or non-existence of legal specifications, all provincial and local health officers in Canada are physicians.

In the United States, the Public Health Service has established professional eligibility requirements for its personnel and conducts examinations as a basis for admission to the Service and for promotion. Training and experience in public health have been acquired by medical officers in the Service. Some of the appointees in recent years hold diplomas in public health. The Service engages, in addition to medical officers, sanitary engineers, dentists, nurses, pharmacists, and technicians.

In Canada and the United States 17 universities offering degrees in public health awarded 107 degrees in 1930, 176 in 1931, and 147 in 1932. These figures are exclusive of the university degrees granted in sanitary engineering and public health nursing. Sixteen educational institutions in the United States reported the granting of 225 public health nursing certificates or degrees in 1930, 251 in 1931, and 278 in 1932. The largest number of graduates in public health have come from the Johns Hopkins University School of Hygiene and Public Health, the Harvard University School of Public Health, and the Toronto University School of Hygiene. These institutions graduated their first classes in 1919, 1923, and 1928, respectively. The total number of degrees in public health granted by all three schools is as follows:

	No. of Degrees Granted to		
Year	*Students from United States and Canada*	*Foreign Students*	
1919	1	-	
1920	4	5	
1921	21	4	
1922	17	6	
1923	33	14	
1924	31	18	
1925	36	22	
1926	25	15	
1927	24	18	
1928	27	23	
1929	28	20	
1930	37	27	
1931	62	38	
1932	61	22	
Total	407 +	232 —	639

In only 38 states is it required by law that the state health officer be a physician, but 47 of the state health officers are physicians. Michigan alone refers in its laws to a degree in public health, and requires it only as an alternative to five years' experience as a practicing physician.

Of the 596 full-time county health officers serving in 36 states at the close of 1931, all but three were physicians. Of the 967 cities in the United States with 10,000 inhabitants or over (Public Health Report of December 4, 1931), 416 (43 per cent) have full-time health officers; 265 (64 per cent) of these are physicians, and 151 (36 per cent) are not. Of the 151 lay officers, 41 are distributed in 22 states and 110 (73 per cent) serve in the 3 states of Massachusetts, New Jersey, and Pennsylvania, where they represent 87 per cent, 87 per cent, and 88 per cent, respectively, of the full-time health officers.

The cities smaller than 10,000 in population which are not embraced by county health organizations generally employ part-time health officers, many of whom are not physicians. In the 93 cities having 100,000 inhabitants or over and representing 30 per cent of the total population of the United States, there are 20 part-time medical health officers, 67 full-time medical health officers, and 6 full-time non-medical health officers.

It will be noted from the foregoing statements that although a large percentage of the health officers in the United States are physicians, many are not. It is generally believed, however, that it is advantageous to a community to have a health officer who is a qualified physician and eligible to participate in medical meetings.

Civil service examinations are conducted in some states and cities as a basis for the appointment of public health personnel, but these are usually only for the subordinate technical and clerical personnel, and not for health officers.

This brief survey shows, as stated in a paper I recently presented in Chicago at a conference called by the American Medical Association, that although there has been rapid growth in public health service, professional standards as a basis for holding positions have not been uniformly adopted. Only a small reserve of trained personnel, especially of trained health officers, is available. It will be necessary to have a substantial reserve before eligibility standards can be uniformly enforced. The non-medical group of health workers must be considered in any discussion of eligibility requirements. It includes engineers, nurses, statisticians, bacteriologists, and other important health workers who have had university training. They believe that if qualifying agencies for public health personnel are to be set up, adequate provision should be made for them. They do not believe it is feasible for medical examining boards, as now constituted, to pass upon their qualifications.

It is the opinion of some physicians that only the health officer should be considered in establishing eligibility standards and that he should decide upon the proper qualifications of his subordinate personnel, taking

into consideration their university degrees and their experience. This of course would lead to many different standards, and it is generally conceded that a single standard for each group of workers, recognized throughout the country, would aid the appointing authorities, the public, the universities, and the persons who have, or who may take, training. It is believed that more efficient personnel would be attracted to the public health field if a national qualifying agency were established. In many states there is objection to a legalized federal qualifying agency on the ground that it would tend to federalize state and local health services. The Naional Board of Medical Examiners, operating as an unofficial agency on a national basis in the medical field, has met such objections and has built up prestige. It has more than 3,000 diplomates, who are recognized without additional examination in 42 states, Porto Rico, the Canal Zone, Hawaii, the United States Army, and the United States Public Health Service. Twenty subsidiary boards are located throughout the country. If public health should be considered a specialty of medicine, it is possible that it would be included in the Board's plan of expansion to embrace all medical specialties. It would, of course, be easier and quicker to expand the scope of an existing agency to include public health, than to create a new agency restricted to public health. It would be necessary for the qualifying agency either to conduct examinations or to pass upon universities and their courses in public health.

These remarks have been presented with the idea merely of indicating the trend of thought in public health circles and in the hope that some constructive plan may be evolved that will safeguard the public health through the establishment of professional standards for public health personnel.

Chairman Moseley: Gentlemen, I am sure I voice the sentiments of this meeting that we all appreciate this talk. On behalf of the Section on Public Health and Education of the State Medical Society, I thank you for coming down and being with us again.

I have a couple of telegrams that I wish to read.

. . . Chairman Moseley read telegrams from Dr. J. H. Janney and Dr. C. E. Waller . . .

Chairman Moseley: It is with much regret that I read these telegrams and tell you that these men are unable to be with us this afternoon. Still, I think we are very fortunate in being able to have men to replace these speakers, and I am sure that they both will have messages that we all will derive much good from.

Substituting for Dr. Waller, we have Dr. M. V. Ziegler and the subject of his talk is "Local Health Administration."

Dr. James M. Parrott (Raleigh): Before Dr. Ziegler speaks, I take this opportunity to say that we all greatly appreciate Dr. Ferrell's coming.

I think we might have the opportunity to discuss his paper just a moment. I have no words of criticism, either constructive or otherwise, to offer.

I have just this thought, Mr. Chairman: That North Carolina has a real, genuine right to be very proud of its public health service. I remind this group that the great, outstanding public health organization of the world is the American Public Health Association, and I remind this group that North Carolina has furnished three presidents to that great organization—the late beloved Richard H. Lewis, another gentleman who is now with us in the flesh—Dr. W. S. Rankin, and the present distinguished gentleman who holds that position—Dr. John A. Ferrell. Now this is not an accident, you know. If we had not the brains down here, doggone it, we would not be able to deliver the goods.

Dr. W. S. Rankin: Neither Dr. Ferrell nor I could appropriate anything he said; but I just remarked to my friend here that Richard H. Lewis made the three of us president—himself, John Ferrell and myself.

Dr. John Ferrell: I am frank to say that in presenting this paper on personnel and professional standards I was just trying it out. I know there is not uniform opinion on it. And simply because I am a visitor here, I don't claim any quarter whatever. If the time of the program permits, I would really appreciate very much any discussion—any criticisms or any suggestions. Because after all, about all that I am engaged in is traveling about over the country trying to get ideas from one place to another, and passing them along. And just as you can pick up certain things that are not so good for you, you may also pick up ideas that are good, in travel. And I think the only way to arrive at an opinion to throw overboard notions that are not sound, is to have a free-for-all discussion, with the hope that no one will feel the slightest reservation in expressing himself one way or the other on any topic that is presented. So, if Dr. Parrott or any of the health officers have any views, especially if they are contrary to those that I outlined, I shall hope very much they won't feel the slightest hesitancy in saying what is on their minds.

Chairman Moseley: We would appreciate some discussion if any of you care to participate.

If not, then we will hear from Dr. Ziegler.

Dr. M. V. Ziegler: Mr. Chairman, the paper that I am about to read will not follow along the title of that which Dr. Waller had prepared to deliver. However, it might be considered as somewhat of a companion to Dr. Ferrell's subject. The subject that I have selected for this occasion is, "The Local Health Administration."

You are cognizant of the difficulty that we are having from time to time in regard to revising county health department budgets. The question arises very frequently: "We have other full-time county employees who are receiving $2,400 a year and why do you insist that the health officer shall be paid a salary of $3,000 a year? He only has his full time

to give, and the county treasurer and the county auditor too contribute their full time and they are working for a salary of $2,400." They lose sight entirely of the fact that the qualifications and training of the health officer are not comparable to that of other county officials.

LOCAL HEALTH ADMINISTRATION

By Surgeon M. V. Ziegler
U. S. Public Health Service, Raleigh, N. C.

GENERAL CONSIDERATION

The protection of the public health is a function of government, and in consequence, the state and local health service must be made an integral part of the respective government. The State Board of Health has two functions:

1. To provide certain services which are by their nature state-wide, and must be direct, such as the supervision of public water supplies, prevention of stream pollution, registration of births and deaths, and laboratory service.

2. To promote the establishment of effectual local health service and to render to local governmental health organizations financial aid and expert consultation service. Local health services are responsible for the control of communicable diseases, general sanitation, protection of food and milk supplies, maternal and child hygiene programs. In carrying on these activities, the State Board of Health aids the local health organization indirectly by offering advisory and consultant assistance.

The effectiveness of both the state and local health programs are largely dependent upon the type and efficiency of local organizations. The public health can best be safeguarded by that agency which comes in daily contact with the people to be served. With this thought in mind, the more progressive state departments of health have, during the past twenty years, concentrated their efforts towards the development of effectual local full-time health organizations by and through which modern public health policies and practices can be given practical and effectual application and expression.

RURAL HEALTH ADMINISTRATION

The agency or instrument best suited to bring about efficient health service in rural areas is the whole-time county health department. This type of service consists of medical and non-medical personnel, technically trained, who serve the public health needs of a given county. When such an organization serves two or more contiguous counties, it is known as a full-time district health department. The local full-time health service is a cooperative service between the county, or counties, and the state

board of health. The financial aid made available by the state board of health towards the support of such local projects is contingent upon:

(a) The employment of qualified personnel on a full-time basis,
(b) The prosecution of satisfactory programs,
(c) The maintenance of certain standards of organization and work,
(d) Submitting to the State Board of Health progress reports of activities, and the proper accounting of funds expended in accordance with approved budgets.

The whole-time county health department has long since passed beyond the experimental stage. The proving ground has been all sections of the United States under varied conditions. The applicability to these varied conditions throughout the United States are testimonials to its practicability, utility, and to its soundness of principle. It is now considered as one of the absolutely necessary services of every progressive rural community. Experience indicates that the best foundation for rural health work is the county health department under the direction of a qualified whole time county health officer. Public health administrators are of the opinion that agencies engaged in the promotion and prosecution of specialized health activities such as tuberculosis, malaria, and venereal disease control, maternal and child hygiene activities, can perform most effective and economical service by integrating their special activities with and making them a part of a comprehensive, well-balanced local health service under the immediate supervision of a qualified whole-time health officer.

The movement for full-time county health departments has gathered considerable momentum since the establishment of the first county health department in Guilford County, North Carolina, in June 1911. Data collected from the state departments of health by the office of Rural Sanitation of the United States Public Health Service, indicate that, at the beginning of the calendar year 1932, there were 616 counties, or comparable political subdivisions, provided with rural health service under the direction of local whole-time health officers. These projects provide health service for slightly less than thirty per cent of the entire rural population of the United States.

The reduction in mortality and morbidity during the past decade has been due in part to the wider application of public health measures through local organized health service. Considerable impetus has been given to the development of local health services by the occurrence of unusual outbreaks of epidemic disease, and disasters occasioned by flood or drought. In the mustering of relief resources to cope with these calamities, whether occasioned by flood, pestilence, or drought, the need for health protection was invariably as imperative as the need for food, shelter and raiment, and suitable measures have *always* been provided for safeguarding the health of the people in the disaster areas. Fortunately, when

such emergencies had passed and normal conditions again prevailed, it was gratifying to note that hygiene and sanitation were on a higher level than that which existed prior to the disaster. Frequently permanent and lasting improvements in water and sewerage systems were born out of the emergency and remained as compensating, silent, working monuments to the disaster.

The progress in the development of local health work during the past twenty-one years has been gratifying. Unfortunately, the average annual gain during the last decade has been only about forty counties. At this rate of progress, it will be fifty years before reasonably adequate local full-time county health services can be extended to all communities in the United States. The thirty-five county health organizations in North Carolina are now serving 1,540,000 people, which is 65% of our rural population.

The county health department, being an official local governmental organization, is in consequence subject to all the vicissitudes of our local, or democratic, form of self-government. In spite of the need for such a service, it has been difficult at times to secure adequate financial support from the county appropriating bodies. Consequently, these local departments of health have been promoted with the stimulation, encouragement, guidance and assistance from the State Board of Health. Financial aid from sources outside of the county have played an important part in the development of this movement. At times, not only have local governments of rural communities been unwilling to adequately support full-time health service, but more frequently they are actually not able to appropriate sufficient sums for the maintenance of an efficient local health organization. Therefore, the fullest development of this important phase of public health protection is dependent upon adequate provision being made by the state and Federal governments so that supplemental financial aid can be made available to counties willing to accept the responsibility for providing an efficient local health service, but unable to do so entirely through local resources.

QUALIFIED PERSONNEL

The personnel required is highly technical and of a character not found in any other county service. It is imperative that the health department be kept free from politics. There is concrete evidence that the full-time county health departments in North Carolina maintained with trained and competent personnel have exerted a salutary influence on county government in general.

The Institute of Government, formally opened in September 1932 by the University of North Carolina, proposed to do for all local governmental activities what the State Board of Health has for sometime endeavored to do for full-time county health departments. The State Board of Health cherishes most sanguine hopes that the Institute of

Government may attain its objectives. Not only will the cause of public health be furthered in some sixty-odd counties, but inestimable good will accrue to the body politic.

MAINTENANCE OF COUNTY HEALTH DEPARTMENTS

The minimum staff of a county health department is known as a four-piece unit. It consists of a health officer, sanitary inspector, public health nurse, and clerk. This minimum organization can be supported at a cost of about 50c per capita per annum. However, a complete organization with reasonably adequate nursing service, including school health supervision, will cost $1.00 per capita per annum. The average per capita cost per annum, including district health service for the current fiscal year, 1932-33, in Tennessee is 43c, while our cost in North Carolina for the current fiscal year 1932-33 for similar service is 25c per capita per annum.

MEDICAL HEALTH OFFICER

The health officer is the director of all of the official public health work within his jurisdiction. The success of local public health work depends upon his knowledge, personality, intelligence, industry and character. He is expected to maintain a continuous sanitary supervision over his territory. The health officer's work is a specialty in medicine and few physicians are qualified to perform it unless they have had a special course in public health. Every effort should be made to secure county health officers of the highest quality in ability and integrity. The appointment must be made on merit alone and not upon political expediency. The salary should be commensurate with his training and ability and other qualifications. Frequently, therefore, the salary of the technically trained county health officer is higher than majority of salaries paid to other full-time county officials. The tenure of office of the trained health officer is an important consideration. Since public health service is a career, one for trained personnel, men of suitable qualifications are reluctant to accept appointments unless they are assured of permanency and security of employment.

BOARD OF HEALTH

The County Board of Health is an important part of full-time county health organization. Since county governments have not yet made provisions for county managers, it is essential that the health officer be made responsible to the Board of Health. The Board of Health should appoint the health officer, enact sanitary codes, and prescribe the legal and general policies for the health officer's activities and exercise general supervision over the activities of the department, prepare a budget, direct the expenditure of the funds, and audit the accounts.

ACTIVITIES OF THE COUNTY HEALTH DEPARTMENT

The activities of the County Health Department are grouped for brevity into six classifications:

1. Public Health Education
2. Measures for the control of communicable diseases
3. Maternal and infant hygiene work
4. The school health supervision
5. Control of venereal diseases
6. Sanitation

CONCLUSION

The adequate protection of the health of our citizens in rural areas is dependent upon a more effective control of tuberculosis, venereal and other communicable diseases, the protection of mothers and babies, the safeguarding of milk and water supplies, the sanitation of the homes and schools. The essentials of modern public health protection can be made available to our rural areas only through the local whole-time county health service manned by properly qualified personnel. While the primary responsibility for the protection of the public health rests with the local unit of government, financial assistance should be provided by the State. Moreover, in order that modern health services for rural areas may be continued and extended, the State should provide professional and technical advice in addition to direct financial aid.

"THE SUN DO MOVE"

By Dr. Ernest Branch
State Board of Health, Raleigh, N. C.

I don't know just where we got that subject. That is Dr. Jim's suggestion. But the sun is about the only stationary object we have in our program. Everything else moves. And I want to talk to you just a little bit about one of the spokes in the wheel that is moving, or the place of mouth health education in a public health program.

I have been very much gratified during this meeting to hear the numerous papers read and to note that so many of them suggested that one thing. However, some of them left it out. Now the reason it was left out is very plain, because it is practically a new thought—not in religion but in health.

We are very much concerned about public health, especially in this State, and there are two phases of disease that we are more concerned about than any others. Getting right down to plain language, when we try to be technical we call them communicable, but the back-swamp fellow calls them "ketching," and in that group we find chicken-pox, measles, diphtheria, typhoid and the like. And I remember down in Robeson County, that it has not been many years ago that just as soon as summer came we were bound to have typhoid fever. And it usually

took the flower of the land. I remember when I was a child, and diphtheria broke out in the neighborhood, the first thing was to take stock and see if we could not find an uncle or aunt to farm out the rest of the children to, until the one had either died or got well who had it. That is right here at home. You don't have to go far away to understand that.

Now what is the difference today? A physician down in one of the eastern counties told me the other day that just a few years ago he had as many as fifty cases of typhoid in his practice each year, and last year there were only five in the county. What makes the difference? You gentlemen know. I am telling you things you know. I am just refreshing your minds. Health education plus prevention has made the difference, along the lines of typhoid and diphtheria.

Another group of diseases we are not so proud of is the group of degenerative diseases—diseases of the heart, kidneys and lungs. Generally they are on the increase. We are bound to admit it is embarrassing to us. They are on the increase, and how are we going to cope with those? The same weapon we used before—health education and prevention.

Now, we can do it, but we have to start when they are young. We have allowed the public to be misled. I don't know whether we have been a party to it or not, but I am persuaded that we have, in allowing them to believe that disease of the kidney is a disease of middle age and beyond, and that heart disease is a disease of middle age and beyond.

Go into our schools, especially at this season of the year, and go into the pre-school clinics, and see the material that our teachers are to work with nexet year. We can't criticize the schools. The physical equipment of our schools is just as fine as you will find anywhere. I will put it up against equipment anywhere. And our teachers are on a par with any teachers any place. But here we bring them material in September. What do we bring? The lame, the halt and the blind. We expect them to whip them into mental giants that will compare with the best. They cannot do it to save their lives. If you were to take a group of teachers with a degree after their names as long as my arm, they would fail. And yet we are worrying and fretting about our teachers. There is your solution right there. They cannot do it.

Now, we make a physical examination of those children and the first thing we find is under-nourishment. Right here in the State of North Carolina, where we grow everything in the world that the body needs, at our back-door, our children are under-nourished. It is a sin and a shame. It is a reflection on our intelligence to allow a condition of that kind to exist. But we do it.

There is the first thing in our educational program right there.

After we find under-nourishment, then we begin to see the thing showing itself. And that is where we come to our subject of this afternoon—the part the mouth plays.

I want to say in the beginning of this that I wish to pay my respects to the first gentleman connected with public health in the United States, who recognized that there was a place for a mouth health campaign—mouth health in a public health program in the United States—and that is Dr. Geo. M. Cooper. (Slide of Dr. Cooper shown).

Now, under-nourishment is reflected in the mouth by the time it is reflected on the scales. The fact of the business is that we have in the mouth signs to go by that show us conclusively that a child is under-nourished. That is in the teeth. Because the enamel caps of those teeth that you see in the first set are calcified beginning with the third month of fetal life, and are completely calcified three months before the baby is born. And if they are not calcified then we know the mother has not started that baby as she ought to have done, as far as nourishing the tissues is concerned.

And then we get in the mouth an index of weight. We have an opportunity to see it in the school. We put the child on the scales and verify the facts. You can also go by the age and height chart along with the weight. We do not go by that, per se, but it is a mighty good measuring stick. I don't know why there are twelve inches to the foot, but the scales is a good measuring stick to start your child to school with, regardless of modern psychologists who say you must not offer any reward to your child for anything it does. I want to say right now it is a good thing to put a reward out, to work to. It is a good plan to put it there and let the child weigh himself in school, and when he weighs himself then he is measuring his own development against himself, and not against Billy Isham. Let him see how he is coming on.

But now let's see a child, one of many, and look in the child's mouth and talk about it for a few minutes.

(Slide) Here is a little girl in the first grade. That mouth looks like it is splendid—a beautiful child. We can, however, find fault with the gums there, indicating under-nourishment.

(Slide) This is a baby's mouth. This is the teeth that the mother was responsible for, that have broken down. Let's look at that mouth. On your right-hand side, the molars in that baby's mouth, supposed to come in the child's mouth at twelve to eighteen months—just look at them. Gum-boils—yes. I put my finger in the baby's mouth and pressed these, and I said, "Baby, did mother ever pop those gum-boils?" And she said, "Yes, she poped them this morning." That mother didn't know what she was popping. I want to say to you gentlemen, to refresh your memories, that if that mother knew that what she was popping out of those gum-boils was the same thing that comes from an old sore on the leg, she would never sit across the table and let her baby eat it every morning—never in the world. She would offer her right arm before she would do it. They just don't know.

And who is going to tell them? You are going to tell them—I am going to tell them. But we are not going to be able to take the message to Garcia. Who is? These teachers in the schools. Gentlemen, you talk about the folks who are on your side. If you want somebody to hook up with you, to help you put over a public health program in this State, I am going to suggest that you tie in with the public school teachers.

There is something else now that we see in this slide besides the gum-boils: We see that little arch is wrong, and those teeth are going to have to come out. You may say if we take those out too soon it will make the others come in crooked. Yes, it will do that. But listen: There is something else we see there. And when we see the second thing I have in mind, may I say to you that I would rather the teeth in my child's mouth come in as crooked as the worm of a rail fence than to leave those things in, and run a chance of the next thing we are going to talk of.

Dr. Emmett Holt made the statement that practically all of the glandular tuberculosis in children originated right there, because, said he, the mouth is a perfect incubator. Well now, we do know it is moist and warm. It is dark down at those roots. And there is all the culture media in the world that it needs. Tubercle bacilli lodges there and multiplies by the millions, and drifts into the glands. You know back home, to use the back-swamp language again, they used to call tuberculosis of the glands just scrofula. Tuberculosis of the bones they called white swelling. Pulmonary tuberculosis they didn't recognize in children so much. They didn't know what it was.

Now, we have got to tell them. It won't do for children to eat with mouths like that. Never in the world. But they are doing it, by the hundreds of thousands.

(Slide) Let us look at this little girl here. There she is in the school yard. You would not need a scale, gentlemen, to tell about her condition. You could leave your scales at home and tell that she is under-nourished. Look at the expression up here in this area (indicating around the eyes). Without any further delay you would suggest adenoids. Look at the little legs and arms.

(Slide) Now let us look at the child's mouth, if you please. On the left there she has lost three teeth. On the right she has lost two. And look at the six-year molar over here, if you please.

(Slide) There is another one in the same school. Let us see her mouth.

(Slide) There is that child's mouth. Let us see the next one.

(Slide) There is another one—a young gentleman in the third grade. He never moved out of the third grade. Yes, he is a problem now. Sex glands are developing. Yes, he cannot work the multiplication tables. And oh, how he would like for somebody to pat him on the back and give him a hand. But he doesn't get that any more. What does he do? He steps on the little boys' heels, because he is a big boy in the third grade, you know. He bends over and crushes them to the ground. He can get

the hand of approval from the crowd for that. And he can knock out more window lights than anybody because he can throw farther than anybody in his group. He can get that kind of approval. He does not need chastising, though. He needs sympathy. He does not need to be condemned. He needs help. Let us look at his mouth.

(Slide) Here it is. Yes, he is sick, but nobody knows it. His mother thinks he has to run a temperature or be broken out with a rash of some kind to be sick. But he is sick now. Look at that mouth. Just push around there, almost any place, and you will get pus. That is what he is eating.

(Slide) There is a nice old mouth. If I had that for hire I could not rent it at all. Yet I meet them up and down the hall—just like that. You don't have to go far to see some like that, you know. I am sure there is no one who would undertake to teach public health with a mouth like that. If they would, I might say, "What you are doing speaks so much louder than anything you say, that it is best to keep your mouth shut."

(Slide) Now let us get to the good side for a moment. I tell the children a story about Sunny Jim and his little sister, Sunshine. These are the children. Perfect mouths. Just as pretty as you want to see.

(Slide) Let us see the group of first grade children who have the best teeth of any group in the State that I have found. Here they are. Now there are some good-sized children there for first grade, but the reason for that is that they had to be taught to speak English, after they started to school, and naturally they were delayed some. That is the Wrightsboro School, down in New Hanover County. Dr. Elliott will recall the day we made the photograph. Those children average over one cow to the home.

(Slide) This is the best record in the State. There are twenty-five children in that group, and only one cavity in one tooth in the entire group, and it was the size of a pin-head. That group is down in the State where they are isolated from the rest of the world, or were until a short time ago. Everyone has a garden, and milk at home. It is down where they have plenty of seafood, too—plenty of lime—lime in the water and lime on the outside—in the vegetables and every place else.

(Slide) Now here is what we are trying to do. We are trying to teach —and are doing it—didactically and through demonstration. This little child has had her mouth put in A-1 condition. She has been shown her mouth in a mirror before and after. Not only that, but with this model here that the dentist has in his hand, he is explaining everything that he has done in her mouth, so that she can go home and tell her mother about it. Don't you think she won't tell it when she gets home, too. Her mother may not have time to listen but she will follow her around until she finishes telling her. So we have the little girl and also her mother, to listen, and that is spreading the gospel.

(Slide) The same thing is happening there. There is a negro teacher right there taking it in, too. That negro teacher is going to know some-

thing about mouth health before they get through too, and she will tell it.

(Slide) Here is the best mouth we have found in the State—absolutely perfect.

(Slide) This is what we are headed for, and we have just arrived at one place. Every child's mouth in that school is made one hundred per cent dentally fit. That is in Buncombe County. We have had a real, honest-to-God mouth health program over there, too. We have had the help and cooperation of everybody. I mean just that. That has not happened only once, but it has happened twice. For two years, hand-running, it has been the only school in the State that has accomplished that. You may have that in your school if you want it. It just depends on how badly you want it.

Do you want it? If so, let us tie up together. We can get it! (Applause)

CHAIRMAN MOSELEY: Now we will be very glad to have discussion on both of these papers.

DR. M. V. ZIEGLER: I would like to make a few remarks in regard to Dr. Branch's program, on this particular line: The time is approaching in connection with the submission of budgets and health appropriations, or budgets for health activities for the coming year, that is, the year beginning July 1, 1933. You are doubtless aware that the State Board of Health is not definitely in position to know what allocations can be made. But for the information of the health officers here who are primarily concerned with budget making, it should occur to you that there is an opportunity to include the mouth hygiene program with a well-rounded health service for your respective counties.

You are cognizant of the fact that on each one of the County Boards of Health you have a member of the dental profession, and the dental profession, at least in my experience, has been very helpful in presenting the needs for health service and the needs of a health program to the County Commissioners; and we as health officers should see to it that the dental member in that service is familiar with a program of mouth hygiene which can be incorporated as a part of the whole health program. Unfortunately, it has occurred in a number of counties in this State that an appropriation was made for mouth hygiene, which was separate and distinct from that of the county health organization. And I am sorry to have to remind some of you men here that the health officer himself did not know that the county had made an appropriation for carrying on mouth hygiene in their respective counties. That is certainly a reflection on the county health officer, that here was an important piece of health work, that through the schools was being carried out, through the superintendent of education, through the dental member of the Board of Health, and the health officer knew nothing about it.

In preparing the budget for funds to be allocated from State sources and from out-of-State sources, we have been able to allocate funds and

offset local funds against Federal funds, and from other agencies outside of the State, which made a material difference in the entire appropriation that would be available for the county.

In one locality, through the very fact that the money for the dental program was thrown into the entire health budget, we were able to secure a substantial increase of out-of-State funds for the health program in that county.

So that I want to remind you to see to it, when the budget is made up this year, that provision can be made to include a substantial appropriation from county sources for oral hygiene, and have it made a part of the entire county budget because that will enhance your opportunities probably of getting a little bit additional allotment from the State Board of Health, if there is any money to be allotted for local health service; and if there is any from the Federal Government or the Rockefeller Foundation you can incorporate that with the entire health program, and you all appreciate the importance of so doing. (Applause)

Chairman Moseley: The next paper is "The Function of the Sanitary Engineer in Public Health Work." This will be discussed by Mr. H. G. Baity, Dean of the School of Engineering, University of North Carolina, and a member of the State Board of Health. (Applause)

Mr. H. G. Baity: Mr. Chairman, Ladies and Gentlemen: I want to apologize at the outest for the fact that there is perhaps neither newness nor originality in what I am going to have to say to you this afternoon. These same ideas have been expressed I presume many times before, by more illustrious people than I am, and I think I have presented the same subject matter to other groups. However, I doubt that it has been presented to a group of this kind, and I hope that it may be appropriate.

THE FUNCTION OF THE SANITARY ENGINEER IN PUBLIC HEALTH WORK

H. G. Baity

Engineering has been simply but adequately defined as "the art of directing the great forces of Nature for the use and convenience of mankind." Sanitary engineering, which is generally considered a specialized division of civil engineering, the oldest branch of the profession, and which embraces the essential physical, chemical and biological sciences, is usually described as "that division of engineering which is concerned with the protection of the health of the community."

This definition would, without liberal interpretation, appear to limit the usefulness of the sanitary engineer to the human race to the provision of barriers against the organisms of the few infectious diseases that find lodgment in the skin, the blood stream, the respiratory organs or intestinal tract and work injury to the human mechanism. While the sanitary engineer might deserve credit worthy of any profession in concerning himself

solely with the erection of impenetrable barriers between the source and the host of pathogenic organisms, and breaking down the lines of communication of those diseases that are transmitted by contact, by air, water, food, fomites, mechanical and biological vectors, his function is broader than this. It is his duty not only to guard the public against the negative factors of health,—the environmental conditions that might produce suffering, disease and death from infectious maladies, but, perhaps equally important, it is his business to promote the health and happiness of the people through positive measures directed toward the improvement of the health influences of the world around us.

Let us see what is meant by *health*. This word comes down to us from the old Anglo-Saxon "haelth." There are numerous allied words, all coming from the same root, such as *hale, whole, wholesome* and *holy*. This idea of wholeness seems to be fundamentally involved. Thus, health in its fullest sense, must apply to the whole body. The common expression "all right" gives the proper idea. Health is bodily *all-rightness*. The word health is used in two ways. It may refer to a state of physical and mental wholeness,—and this is its popular interpretation,—meaning normal health or good health. Here it is an absolute term. Or it may be used in a relative sense to represent a designated approach to such a state, with certain modifications or qualifications, such as excellent health, bad health or some other quality of health. By giving the word its full meaning, it is possible to analyze it and to study and evaluate the factors which influence it favorably or detrimentally.

Health implies organic soundness. We read in the Bible that "they that are whole need not a physician." It implies a condition in which all of the organs function naturally and the body as a whole operates effectively. It indicates a state of being in which the body responds adequately to its environment and in which there exists a sense of comfort, or physical content. It implies also mental soundness, mental activity and mental tranquility. In other words, full natural health has four elements,—a sound mind, a sound body, natural functioning and fitting responses to outside influences.

It is not particularly surprising that some people should pick out one of these concepts and emphasize it to the neglect of the others, thus giving the word health a limited or circumscribed meaning. Some limit the word to the soundness of the physical body, some exclude the senses, while others overlook the nervous and mental states. To most laymen, and even to many physicians and health officers, no doubt, health means merely the absence of disease. The increasing use of vital statistics, based upon mortality and morbidity reports, as measures of public health accomplishment and indications of the healthiness of a community, is tending to spread this unfortunate, limited and negative use of the word.

There are positive elements of health which tend to build it up above the normal level. These positive factors are more difficult to measure than

the negative one which cause departures from good health; nevertheless the positive effects are extremely important and deserve consideration. There are conditions under which vitality is being stored up, resistance to disease increased and the human organism made happy and content in his environment, just as there are conditions under which his vitality is being exhausted, his nerves wrecked, his bodily functions impaired, his life made unhappy by his environment and his mind and body made ready for the ravages of disease.

Let us see what these environmental factors are which so vitally affect health positively and negatively. It is impossible to conceive of man apart from his environment, for "man is what he is largely because he is where he is," to quote my esteemed geologist-friend, Collier Cobb. To be sure, health is dependent in great measure upon inborn, constitutional, hereditary factors. Length of life probably depends more upon these intrinsic forces than upon anything else; but not so with our enjoyment of life or our use of life, which depend almost wholly upon environmental influences. These environmental factors are of especial interest to sanitary engineers, for they may be readily controlled; and it is the privilege and duty of the sanitarian to exercise this control to the advantage of the race. He becomes, then, not only the guardian against disease infection through an unclean environment, but the promoter of a more wholesome and abundant life through the improvement of the environmental influences which affect our physical, mental and spiritual well-being.

Some environmental factors injure health; others promote it. Whipple has classified these in the following three groups:

First:

a. *Damaging Factors,* which include infections, poisonings and accidents. The biological, chemical and physical injuries inflicted by them cause the greatest direct impairment of health. It is doubtful whether any of their indirect effects may be considered beneficial to health considered in its broadest meaning.

b. *Functional Factors,* which concern such functions of the body as breathing, eating and drinking, excretion, sleep, exercise and body temperature. Depending upon their character they affect the body for good or ill; they may injure health or promote it; they are either negative or positive. Good food may promote health; poor food may injure it. Wholesome food, pure water, fresh air and exercise tend to create a store of vitality; bad food, impure water, foul air and fatigue tend to deplete the health reserves. These functions are ordinarily considered under the head of hygiene.

c. *Sensatory Factors,* or the environmental influences which affect the senses and through them, indirectly, the bodily functions. These are also positive or negative. Bad smells and tastes are injurious; agreeable odors and tastes are beneficial and stimulative of good health. Excessive

noise is injurious; music is beautiful. Sights of ugliness and cruelty are repulsive and harmful; beauty is a great uplifting force.

While those environmental influences which work direct damage to the human organism by infection, by poisoning or by physical injury are, without question, of major public health significance, those that produce indirect effects upon the senses and bodily functions are coming to be recognized as of great importance to human well-being. Health, in its full meaning, includes comfort, fullness of life and happiness. The word comfort seems to be so closely related to health as to be inseparable from it. In popular writings and in the laws we find the expression "health and comfort of the people." It must be recognized that just as the body, its functional activities and its sensations, may affect the mental state, so the mental state may affect the functions of the body. The two are not antagonistic, but complementary; and perfect health results from what Carlyle called their "sweet co-operation."

It is better, then, that we should define sanitary engineering as "the art of securing and maintaining a clean environment for the protection and promotion of health, comfort and safety." It should be emphasized that the objective of the sanitary engineer is not merely to prevent injury to health resulting from infections by disease, but also to promote health by providing in abundance the positive influences which bring comfort, contentment and happiness to the people. For example, we filter water to make it clear and palatable, not merely to remove the germs of disease; we convert dumping grounds and swamps into parkways and gardens not merely to eliminate the breeding of rodents and mosquitoes, but to reveal beauties of nature that may please the senses. Sunlight and pure air in abundance, attractiveness of surroundings, absence of noise are emphatically health promotive agencies which cannot be overlooked. Sanitation is, in fact, the foundation stone of sound public health.

Let us consider more in detail the scope of the field of sanitary engineering, the training necessary to the practitioner in this field and the duties that he may be expected to perform. Probably no other division of engineering requires so wide and varied a knowledge of the allied sciences. A competent sanitary engineer must be not only a well trained civil engineer, with a thorough understanding of mechanics, structures, construction methods, hydraulics and machinery, but he must be well versed in those phases of the sciences of chemistry, meteorology, hydrology, botany, bacteriology, microscopy, entomology and zoology which find constant application in the practical problems of his profession. The accompanying chart will give some idea of the complexity of his training and the contribution of the various sciences to the field of his activity.

Second:

The sanitary engineer does not profess a self-sufficiency that enables him to handle alone all of the problems which fall in the realm of sani-

tation. Many of these problems are common to other professions and sciences, and often he seeks the cooperation and advice of their specialists in dealing with complicated situations. The following chart indicates some of the typical relationships of this kind.

Third:

Sanitary engineering, compared in age to its parent profession, is of relatively recent origin. Its beginning as a specialized field is contemporaneous with the establishment of the germ theory of disease, a parallelism which is obvious. It was not until Pasteur and his followers demonstrated that infectious diseases were caused by specific organisms, and that contagion could be prevented by interposing a barrier between the source and the victim of these pathogens that the importance of sanitation as a heatlh protection and conservation measure was recognized. Witness the devastating epidemics and pandemics of the Middle Ages, attributable to the wrath of God, which could have been prevented by an earlier appreciation of these simple truths of disease transmission. It was not until more recent years that sanitation of the environment for its indirect benefits to health through favorable response of the senses and bodily functions was considered of sufficient importance to warrant the attention of the engineer. Now we find the sanitarian, backed by the authority of the police power of government, devoting his attention not only to questions of water supply, excreta disposal and mosquito control, but to lighting, ventilation, river cleaning, refuse disposal, housing, zoning and city planning.

Another reason for the recent development of sanitary engineering as a profession has been the rapid growth of populations and the tremendous concentration of this population in congested urban centers. Primitive man offered no public health problem. He lived apart, and his food and drink were from sources uninfected with organisms of disease. Suppose he did acquire a contagious malady; it was confined to his own household or, at most, transmitted only to his friends in nearby caves or wigwams. There was no particular hazard to the health of the community or the land. But with the coming of civilization, its easy transportation facilities and migrant populations, and the congregation of unbelievable hordes of people in limited areas, the dangers to the public health from communicable diseases have multiplied in geometric progression. Without the vigilance of modern sanitary science the scourges of the Dark Ages would pale into insignificance by comparison with those of the modern age. In 1870 we had in the United States only 14 cities with a population greater than 100,000; today there are more than 80. In 1874 we had in our 50 largest cities a population of 5,773,000; today there are more than 25,000,000. We have in America about 20,000 incorporated places varying in size from 100 to 8,000,000 and comprising a total population of almost 80,000,000 or 60 per cent of the people of the land.

At some times in the past,—and I am happy to believe these times are forever passed,—there has appeared a considerable reluctance to accept and give status to the sanitary engineer in public health organizations. This attitude I believe to have been due more to an honest lack of understanding of his place and function in this work than to any professional jealousy, or the fear that a rank upstart was invading the sacred precincts and prerogatives of public health as established by the medical profession. I remember once having sought the advice of an eminent public health official, who was also a sympathetic friend, regarding the advisability of pursuing graduate study, and being told that he could see no future service that I might render which would justify this effort. In fact, he confided to me quite frankly that he saw no place in the health service for an engineer unless it was in digging drainage ditches for mosquito control under the direction of a malaria specialist. But the experiences and accomplishments of public health agencies during the past decade or two have effected a change in such attitudes. Such health agencies as the Rockefeller Foundation and the United States Public Health Service have been largely responsible for the recognition of the sanitary engineer. By reason of his special training and fitness, he is now rather generally accepted on a parity with other personnel for the performance of those public health duties, non-medical in character, which pertain to the sanitation and improvement of the environment. Nor is there any reason why the engineer should not be an amicable and indispensable member of the public health family. He does not aspire to positions of direction of public health organizations; he recognizes the physician who is specially trained and experienced as the proper man for this task. The engineer is by nature and training usually non-political and non-meddlesome; as a rule he is agreeable to live with and is content to be given the opportunity to do his job in an engineering fashion. He does not easily overstep the bounds of his domain, for it is limited by the very definite line separating the medical from the non-medical, the personal from the environmental.

The duties and responsibilities of the public health engineer are many and various, depending upon the nature and size of the organization in which he works and its location. His primary functions are always the protection of public water and the disposal of domestic sewage, for here the greatest health hazards lie. Closely following in importance, however, are the problems of food control, including milk and shellfish, markets and eating places; private water supply and excreta disposal facilities, transportation sanitation, school and institutional sanitation, tourist and summer camp sanitation, mosquito and malaria control, jail and convict camp regulation, hotel control, bedding sanitation, housing regulation,

rodent and insect control, roadside sanitation, stream pollution control, industrial waste disposal, plumbing, heating and ventilation regulation, street cleaning, atmospheric pollution and noise prevention.

The sanitary engineer comes close to life. A knowledge of biology is fundamental to his work. Although it has been said facetiously that whereas "the engineer is the man who always keeps his feet upon the earth and his head among the clouds," the sanitary engineer is the man whose feet are always muddy and whose head is always cloudy, his work is nevertheless a contribution to the great elements of life. He has opportunities to protect and promote health and comfort. He has opportunities to protect the beauty of streams, lakes and ocean shores, to build beautiful structures, to utilize the latent beauty of falling water. Although burying much of his work under ground, he makes possible the development of noble city plans. Through organized cleanliness he makes it possible for the beauties of architecture to be revealed. Through insistence on individual responsibilities in public sanitation he helps to develop a moral sense of duty and a spirit of co-operation, which is the very basis of civilization.

Chairman Moseley: Is there any discussison of this paper? Apparently there is none.

This then brings to an end the papers for this afternoon. I personally want to thank each one of these speakers, and also on behalf of the Section on Public Health and Education, for their addresses, and assure them we did enjoy them.

The matter of selecting a Chairman of this Section for the coming year is at hand and I would like to hear a nomination.

Dr. Norton: I would like to nominate Dr. Rhyne of Gastonia. I so move, Mr. Chairman.

. . . The motion was seconded . . .

Chairman Moseley: Are there other nominations? If not, I am glad to declare Dr. Rhyne unanimously elected Chairman of the Section on Public Health and Education for the coming year, and I will ask him to come forward.

. . . Dr. Rhyne of Gastonia took the Chair . . . (Applause)

Chairman Rhyne: I want to thank this organization for the honor bestowed upon me. I feel sure you have made a mistake. I will convince you of that next year. Is there further business to come before this Section?

Dr. John Ferrell: Before you adjourn, I would like, as President of the American Public Health Association, to bring greetings to this Section, and also the Health Officers Association, and remind you that

the next meeting of our Association will be held at Indianapolis in October, and we hope that as many as possible of those interested in public health will attend the meeting. It will be possible, in addition to attending the meeting of the Association, to have reduced rates for the Exposition in Chicago, and take in the two events with one absence from home.

I trust that as many as possible will be present at the next meeting in Indianapolis, in October.

CHAIRMAN RHYNE: I hope you will avail yourselves of this opportunity of attending the meeting of the American Public Health Association next Fall.

. . . The meeting adjourned at 5:00 P. M. . . .

SECTION ON PEDIATRICS

WEDNESDAY, APRIL 19, 1933

The meeting convened at 2:30 P. M. in the New Dining Room of the Hotel Sir Walter, Raleigh, N. C., Dr. C. A. Street of Winston-Salem, presiding.

CHAIRMAN STREET: Gentlemen: It is getting late. I am sorry we were delayed, but they had a meeting in this room and were late getting through. So we will start the program.

One or two announcements: There is one paper that should have been on this program that, due to a misunderstanding of mine, I didn't get it on the program. It will be the last paper by Dr. John M. Cassen, of Duke, on the "Effect of Copper and Iron in Anemia."

I would also like to appoint a committee at this time to listen to the papers and report on the paper they think might be considered for the Moore County Medal. This Committee will report to me. I will put on that Committee: Dr. Thayer, Dr. Sanders and Dr. Ward.

DIABETES IN CHILDHOOD

(CHAIRMAN'S ADDRESS)

By DR. C. A. STREET, Winston-Salem, N. C.

Before the discovery of insulin the treatment of diabetes in children was at best a most difficult and in the end unsuccessful proposition.

The natural tendency was for the disease to become progressively more severe and in the course of a few months or years at most, death ended the struggle. The maxim of Von Noorden that "true diabetes in childhood knows no pardon" is no longer true, and diabetic children need not die of diabetes. Rosenburg emphasizes the fact that he knows of no diabetic child who, since the introduction of insulin into the therapy of diabetes, has not developed physically and mentally in the same manner as a healthy child. Children who die of diabetes die of coma, except in rare instances from insulin shock. Coma is preventable, and while there will no doubt always be coma deaths, for which the physician cannot be held responsible, in most cases the responsibility must rest with the physician.

In children the diagnosis of diabetes is usually not difficult, if the condition is kept in mind. Glycosuria, which is not due to diabetes, is fairly common in children. It is not unusual to have patients referred who are being treated for diabetes who have a simple non-diabetic glycosuria. In many cases the onset is quite sudden with classic symptoms. In others the onset is more gradual. There is loss of weight, the child tires easily, is very fretful and listless, with an increasing polyuria, thirst, and a capricious appetite. In some cases enuresis is the first symptom

noted by the parents. The final diagnosis rests upon the rise of the blood-sugar. Any patient whose postprandial blood-sugar rises above 0.16% is classified as a true diabetic.

Diabetes is not a rare condition in children. Joslin estimates that there are 1,000 new cases each year in the United States. If these are not properly treated it may easily be seen that the children's diabetic population is rather large and will increase.

There is no general agreement as to any particular age or ages at which diabetes is more likely to develop. In Joslin's cases, three, five, eight and twelve were the ages of greatest incidence. In John's, and Priesel's and Wagner's series the sixth and eleventh years showed the greatest incidence. Suggesting that growth is concerned in some way with the onset of diabetes as these are the ages when spurts of growth occur.

The cause of diabetes is a congenital and inherited inferiority of the island apparatus. Heredity is without doubt the most important etiological factor. Joslin reports 39% of 553 children and 53% of 72 children whose diabetes was of 10 or more years duration. Priesel and Wagner reported 36% of 121 living cases as having hereditary diabetes.

Priscilla White presents considerable exidence to show that diabetes is transmitted as a simple Mendelian recessive.

Obesity is not a common finding in diabetic children but over-height and over-growth are present in the majority at the onset of the disease. Over-height and over-growth in children seems to correspond to obesity in adults.

Infections while stressed as an exciting cause of diabetes by some writers, have not been more numerous in the past histories of diabetic children than in average American children.

Among the complications, arteriosclerosis, which is now the greatest enemy of the adult diabetic, also occurs with considerable frequency in children. However, it occurs almost exclusively in patients who have been on high fat diets or in cases where the diabetes is uncontrolled. Joslin says it is rare in patients who receive as much as 100 grams of carbohydrates daily and whose diabetes is controlled by insulin. Of 19 cases with X-ray evidence of arteriosclerosis, only 3 had prescribed diets of 110 grams of carbohydrate, and only 2 in which the fat was less than 100 grams. Of the 3 with 110 grams of carbohydrate 2 also received 150 grams of fat and 1 had a tuberculous sinus of the neck. The 2 with less than 100 grams of fat also were undernourished, the diets amounting to high fat, low carbohydrate.

Cataracts occur in a small percentage of diabetic children and here again it is the untreated or uncontrolled diabetic child that is almost always the victim.

Among nervous manifestations epilepsy seems to be slightly more common among diabetic children than among non-diabetic.

The child with diabetes is also more suspectible to tuberculosis than the normal child, and while the treatment with the aid of insulin may be successful, every effort should be made to prevent these children from becoming exposed to tuberculosis.

The acute infections are no more severe in themselves in diabetic children than in normal children. The danger is that through a temporary loss of tolerance the child may develop an acidosis. To prevent this the carbohydrate should be kept at the normal level, the fat and protein reduced, the urine tested at frequent intervals, and insulin given in small doses as appears necessary to maintain the diabetic equilibrium.

Surgery in diabetic children offers no particular difficulties. It is better to give a slight excess of carbohydrate and also to reduce the insulin before operations in order to avoid hypoglycaemia.

The treatment of diabetes we believe to be much more rational at present than it was even four or five years ago, in that most physicians are giving more nearly normal diets, instead of the high fat, low carbohydrate diets which one sees even now at times.

It should be possible to prevent coma. The first year is the most dangerous for the diabetic and a great many die of coma during this period, therefore it is necessary for patients to be under much closer supervision during the first year or two of the disease. Also it is necessary to teach the patient or the attendant, not only the routine of diet and insulin treatment, but as much as possible about the nature of the disease itself, so that they may always have in mind the possibility of coma. For instance any acute infection in a diabetic may cause coma to develop within a few hours. The more time spent in teaching diabetic patients the less coma there will be. The patient, the extent of whose knowledge is that he has kidney trouble and cannot eat white bread and sweets is, as one might say, "headed for the rocks."

In the treatment of coma promptness is essential. Insulin is usually given every half hour in doses of 5 to 40 units. Fluids are necessary to combat dehydration. Alkalies in the form of sodium-bicarbonate are probably harmful and are not necessary. Sodium lactate is said to hasten the recovery from coma. Other treatment is symptomatic.

Judging from the death rate from diabetes in North Carolina one sees no evidence whatever of any change in the treatment of diabetes during the past 18 years. The rate in 1914, the first year for which reliable statistics are available, was 5.1 per 100,000, with a total of 121 deaths reported from diabetes. The rate has increased with slight fluctuations until in 1931 it was 10.2; twice the rate in 1914 with a total of 329 deaths. Most of these doubtless died of coma.

However, the death rate from diabetes in New York City increased from 17.3 in 1901 to 27.9 in 1931. An increase in the death rate of 58% in 30 years. As against an increase of 100% in North Carolina in 18 years. Foster, in an analysis of 1,800 diabetic deaths, reported that

insulin had been used in only 881 or 49%. Of those receiving insulin: 54% or 476 were given insulin for the first time within a month of death, in other words, of the 1,800 who died of diabetes, only 405 could be considered as being under real treatment with insulin. It is possible that some deaths are reported as being due to diabetes which are due to other causes. If a patient who has diabetes which is under control and is kept under control, dies of pneumonia, it should not be reported as a diabetic death. Also the diabetic population should be increasing in age and naturally there will always be deaths among this population, but they should not die of coma. If they escape the infections, why not carry them on to the age where degenerative conditions, new growths and such can have a chance at them?

The diet in diabetes should be sufficient to produce normal growth and development. The diabetic child's activities should not be limited, neither should the child be taught to consider itself an invalid. Rather diabetic children should be taught that as long as they observe their diabetic regimen, they can do just as much as normal children.

It is almost necessary to keep diabetic children in a hospital at the beginning of treatment, not only for the purpose of regulating the diet and insulin, but also to teach the child or its attendant how to calculate and prepare the diet, how to give insulin, test the urine and such. Trying to teach diabetes in the home or office is not very satisfactory. It is a laborious and time consuming process at best. It requires not only a knowledge of the disease itself and the use of insulin in its treatment, but also a rather extensive knowledge of foods and food values if the patient is to be taught to calculate and prepare the diet properly.

We are fortunate in Winston-Salem in having a very competent dietitian in one of our hospitals who understands diabetic diets and can teach the patients, and when I say fortunate, I mean just that, for the dietitian who understands diabetic diets and can teach the patients is certainly unusual in my experience.

It is not nearly so satisfactory to send a patient home with a series of diet lists to be used over and over as to teach them or their attendant to calculate the diets themselves, then they can make the changes if new diets are given.

The composition of the diabetic diet is not standardized by any means. In children Joslin advocates 25 to 50 per cent of the total calories in carbohydrate, 10 to 20 per cent in protein, and 35 to 60 in fat. He gives, in other words, 100 to 200 grams of carbohydrate, 45 to 85 grams of protein, and 60 to 90 grams of fat. Others, Sansum and Geyelin particularly, use much higher carbohydrate diets. Priesel and Wagner prefer high fat diets. Stolte recommends a free diet in diabetic children. Walenta and Trusen in the Pediatric Clinic of the University of Berlin divide their diabetic children into two groups. The first group consists of early cases in which the disease is relatively mild. These are treated with restricted

diets and enough insulin to maintain relatively normal blood-sugar. It is their contention, however, that these cases, due to infections and increase in body weight mainly, rather than dietary indiscretions, gradually become more severe until there is no longer any evidence of pancreatic function. In these cases a relatively high dosage of insulin is required, with little variation in its size. These patients are given a free mixed diet such as Stolte recommends, the only restrictions being to avoid too great variations in diet. They report excellent results, which is interesting.

Total diabetes in our opinion is rare, and to treat patients on such a plan would, we believe, subject them unnecessarily to the complications of diabetes. Furthermore, diabetes in children if properly treated shows very little tendency to become more severe. Probably the island apparatus does not increase in function rapidly enough to take care of the increased body weight, but the insulin necessary to take care of this increase in body size is not a great amount.

A restricted diet with high carbohydrate, low fat, 2 to 4 grams of protein per kilograms of body weight, has been much more satisfactory in our experience. If the calories are kept the same, larger amounts of carbohydrate (100 to 200 grams) require little if any more insulin. Such diets are more palatable and satisfying than high fat diets, there is less tendency for the patients to break diet and we believe such patients are less likely to develop coma, cataract, and in later years, arteriosclerosis, and there is certainly less tendency for the disease to become more severe.

There is some question as to whether one should attempt to keep the urine free of sugar. This depends to an extent on the severity of the disease. The mild cases on low insulin may be kept practically free of sugar in the urine. Severe cases who take large amounts of insulin in most cases will show sugar in the urine quite frequently. To attempt to keep the urine of these severe cases free of sugar at all times subjects them unnecessarily to insulin reactions. It is probably better to risk a little sugar in the urine part of the time in severe cases.

Insulin reactions are certain to occur in patients who take insulin. They have them in the hospital. Such patients and their attendants should be taught to recognize the onset of hypoglycemic symptoms as early as possible. It is our practice to teach them to take carbohydrate always if there is the slightest suspicion of a reaction. In our experience this has been the most satisfactory plan. The general tendency is for patients to put off or even refuse food, more often than to make reactions the excuse for getting more food. Excess carbohydrate in this condition does not cause trouble. My patients are taught to carry at all times sugar cubes, candy or some concentrated carbohydrate.

There are physicians in North Carolina who do not use insulin in the treatment of diabetes in children. One can only pity their patients. We do not believe any one can learn a great deal about the treatment of diabetes by listening to one paper. It is our purpose to call your attention

to certain phases of diabetes and its treatment, also that there does not seem to be any evidence of improvement in the general treatment of diabetes in North Carolina in the last 18 years, in the hope that more interest may be stimulated in the condition. Apparently the benefits of insulin and proper diet are only for the fortunate few. We believe that entirely too little insulin is used and too many physicians still cling to the old idea of high fat and low carbohydrate diets. And that this in itself is a frequent cause of accidents.

The diabetic child in North Carolina deserves as good treatment as the diabetic child of Boston or anywhere else.

HYPOGLYCEMIA: A CAUSE OF CONVULSIONS IN CHILDHOOD

By J. R. Adams, M.D., Charlotte, N. C.

Soon after the introduction of insulin in 1922 it was learned that overdosage produced hypoglycemia with definite symptoms. That such a condition might arise spontaneously was first hypothecated by Seale Harris in 1924. Knowing that both hypo- and hyper- function occurred in the thyroid and pituitary glands, and that hypo-function of the Islands of Langerhans occurred in diabetes mellitus, he reasoned that hyper-function, or overproduction of insulin, should also occur. Furthermore, this increased function should produce symptoms similar to those caused by an overdose of insulin. The basis for this theory was the observation of 5 cases of spontaneous hypoglycemia, which he termed hyper-insulinism. Although it is not within the scope of this paper to review the mass of literature that has accumulated on hypoglycemia since Harris' original report, a brief survey of the work pertaining to children should be of interest here. Complete reviews may be found in recent articles by Harris and by Gammon and Tenery.

In 1924 Ross and Josephs reported the case of a 3-year-old child who had had repeated convulsions since the age of six months, occurring invariably in the morning before breakfast. The blood sugar, taken during an attack, was found to be 37 mgm./100 cc. In the same year Shaw and Moriarty studied 5 children with idiopathic epilepsy during a period of fasting and found a striking fall in the blood sugar. The minimum was between the 3rd and 8th day and averaged 46 mgm./100 cc. In only one of these children, however, were symptoms of hypoglycemia observed. In their paper reference is made to studies reported by Rumpf, who found an average blood sugar of 45 mgm./100 cc. in normal infants at the end of a 24-hour fast. Two years later Josephs called attention to the frequency of convulsions in childhood after a period of brief fasting, often associated with fever. Determination of the blood sugar was made in only 3 of the 8 cases reported, and in these 3 it was found to be low. Gray and Feemster in 1926 reported the case of a child, born of a diabetic mother, who died of hypoglycemic shock. Autopsy revealed marked hypertrophy

of the Islands of Langerhans, which was considered an effort to compensate for the deficiency of the hormone in the maternal circulation. The next year McIntosh described a case of phosphorus poisoning in a 16-months-old infant, who was comatose and jaundiced when seen, and whose blood sugar, after the administration of glucose subcutaneously, was 25 mgm./100 cc. The low blood sugar was attributed to both starvation and liver damage. In 1929 Josephs reported 10 cases of hypoglycemia in children, with somnolence, convulsions, and coma as the principal symptoms. Autopsy performed on 2 of these cases showed an enlarged fatty liver in each. He felt that fasting, hard play, and fever, in addition to liver damage, were contributing factors in the production of the low sugar. In the same year Griffith reported 9 cases of convulsions associated with low blood sugar, the value ranging from 20 mgm./100 cc. to 57 mgm./100 cc. He did not believe, however, that the low sugar played the etiologic role in all of these cases. Baumhauer in 1932 reported 7 cases of hypoglycemic convulsions in children, with improvement on frequent carbohydrate feedings.

The physiological mechanisms that maintain the normal blood sugar level may be summarized briefly. It is well known that the store of glycogen in the liver is the chief source of the blood sugar during the period when food is not being absorbed from the intestinal tract. Also, the liver, in addition to serving as a store-house for glycogen, is the sole organ where glycogenesis occurs. The blood sugar level represents a balance between the consumption of glucose by the tissues and the production of glucose by the liver, and varies normally from 80 mgm./100 cc. to 120 mgm./100 cc. Insulin, from the Islands of Langerhans, functions solely in the consumption of glucose. An insufficient supply of insulin results in hyperglycemia, or diabetus mellitus; an overproduction causes hypoglycemia. It is known that the islets are capable of manufacturing much more insulin than is actually needed to maintain the blood sugar level, but the production and release are normally regulated, under nervous control, to the needs of the body. Adrenalin affects the blood sugar in that it facilitates the liberation of glycogen; insufficiency tends to inhibit the formation of glucose. Pituitrin, i.e., the extract of the posterior lobe, is directly antagonistic to the action of insulin, as is also thyroxin.

The causes, then, of hypoglycemia are multiple. Any severe damage to the liver will result in a disturbance of glycogen production and storage, with a consequent fall in the blood sugar level. It has long been known that removal of the liver resulted in a rapid fall of the blood sugar, even to entire disappearance. Extensive liver damage due to drugs (hydrazine, phosphorus, chloroform, arsenic) and to carcinoma has been observed to cause hypoglycemia. Strenuous prolonged exercise may cause severe depletion of the glycogen reserves with a fall in the blood sugar.

The majority of the cases of hypoglycemia reported in the literature are of pancreatic origin. Excessive amounts of insulin may be liberated

from a normal pancreas either due to excessive production or to abnormal release. Harris coined the terms hyperinsulinism and dyinsulinism, the former characterizing excessive production, the latter designating abnormal release. Harris coined the terms hyperinsulinism and dysinsulinism, the ism have been reported. That a tumor of the Islands of Langerhans could produce hypoglycemia was demonstrated conclusively by Wilder, Allan, Power, and Robertson. Howland and his co-workers were the first to remove a tumor of the islets in a case of dysinsulinism with complete clinical cure. Since their report there have been 6 instances of the operative removal of an adenoma of the pancreas. In one of these cases failure to relieve the symptoms after the removal of one adenoma prompted a second exploration, when a second adenoma, hidden away in the body of the pancreas, was found. Marked improvement has followed the second operation. Tumors of the Islands of Langerhans have been found at autopsy in many instances, in some cases associated with hypoglycemic symptoms before death, in others with no symptoms. No report is found in the literature of the removal of an adenoma in a child.

Hypoglycemia has been frequently observed in Addison's disease, apparently due to hypo-function of the adrenal glands. Anderson reported a case of fatal hypoglycemia associated with a tumor of the suprarenal gland. Prolonged over-activity of the adrenals caused depletion of the glycogen stores of the liver with exhaustion of the chief source of supply of the blood sugar, hence hypoglycemia.

Hypoglycemia has also been observed in cases of hypo-function of the pituitary gland, and in lowered function of the thyroid.

Carr has recently reviewed the symptomatology of hypoglycemia, stating that nervous symptoms form a predominant part of the picture, and that the intensity of the symptoms bears a definite relationship to the degree of hypoglycemia. With moderate lowering of the blood sugar there occur hunger, sweating, restlessness, anxiety, weakness, and trembling. With greater fall of the sugar level these symptoms are intensified and in addition are seen mental confusion, diplopia, amnesia, stupor, coma, twitching, and convulsions. Transient hemiplegia and pathological reflexes have been noted after hypoglycemia convulsions. In several instances death has occurred. The similarity of hypoglycemia attacks to epilepsy is mentioned in the literature frequently, and in many of the reported cases epilepsy had been diagnosed before the real nature of the derangement was suspected.

The treatment of hypoglycemia has been for the most part medical. Frequent carbohydrate feedings, in order to maintain the blood sugar level, have proved efficacious in the majority of cases. However, Harris advocates a low carbohydrate, high fat diet. Since carbohydrates furnish the most effective stimulus to the secretion of insulin it appears logical to decrease the intake, thereby diminishing stimulation. He feels that the excessive ingestion of carbohydrates causes over-stimulation of the

islets with overproduction of insulin, resulting in hypoglycemia. Finally, this over-activity may lead to exhaustion of the islets, with resulting hypo-insulinism, or diabetes mellitus. Shepardson has recently reported excellent results in the treatment of 2 patients with hyperinsulinism with a high fat, low carbohydrate diet, whereas frequent carbohydrate feedings had made the condition worse. In the acute hypoglycemic attack the blood sugar should be elevated as quickly as possible, either by the administration of glucose intravenously or through the injection of adrenalin.

The surgical treatment of hypoglycemia has been discussed quite recently by Holman and Railsback and by Graham and Womack. Removal of the adenoma of the islets has been performed 7 times with good results. In several instances resection of a portion of a normal appearing pancreas has been done, but in practically all of the cases the results have been disappointing.

The following cases of hypoglycemia were observed at St. Louis Children's Hospital:

Case 1: 1st admission. L. C., a boy aged 4 years, was admitted to the hospital August 11, 1931, in a semi-stuporous state. He had awakened early that morning with a generalized convulsion, followed by stupor. Relevant in his past history was the fact that he had had 3 similar attacks, each one occurring around 4:00 A. M. Following the first convulsion stupor persisted for 3 days. The second and third attacks were followed by stupor of an hour's duration. Examination at the time of admission was negative except for a subnormal temperature (36 degrees C.) and cold extremities. The blood sugar was 40 mgm./100 cc. There was prompt and complete recovery following the administration of 200 cc. of 10% glucose intravenously and 400 cc. of combined solution subcutaneously.

2nd admission: On September 23, 1931, L. C. was admitted for tonsillectomy. A fasting blood sugar was 90 mgm./100 cc. T. & A. was performed in the usual manner without complications or sequelae.

3rd admission: On October 22, 1931, L. C. was readmitted in a stuporous condition, with essentially the same history as before. He had awakened early that morning with a generalized convulsion followed by stupor. The blood sugar was found to be 32 mgm./100 cc., and there was prompt relief on the intravenous injection of 10% glucose. A sugar tolerance test done on October 24, 1931, gave the following results:

Fasting	82 mgm./100 cc.
½ hr.	127 mgm./100 cc.
1 hr.	119 mgm./100 cc.
2 hrs.	106 mgm./100 cc.
3 hrs	101 mgm./100 cc.

4th admission: L. C. was readmitted on January 30, 1932, with essentially the same history as above. The blood sugar was 30 mgm./100 cc.

and again the attack was promptly relieved by the intravenous administration of 10% glucose. A sugar tolerance test on this admission showed:

Fasting	70 mgm./100 cc.
½ hr.	156 mgm./100 cc.
1 hr.	143 mgm./100 cc.
1½ hrs.	135 mgm./100 cc.
2½ hrs.	119 mgm./100 cc.
3½ hrs.	56 mgm./100 cc.

Comment: The etiology in this case is questionable. In each instance the attack occurred after a brief fast, which may have been sufficient in this child to cause the fall in the blood sugar.

Case 2: M. B., a boy aged 2 years, was brought in to St. Louis Children's Hospital late in the afternoon of September 3, 1931, in a stuporous state. For several preceding weeks his mother had thought that he was pilfering jam and other sweets from the pantry, but had caught him red-handed only 2 days before entry. To punish him she not only took away all sweets but even went so far as to refuse him sugar on his cereal. The morning of admission he was aroused only with difficulty and could not be kept awake sufficiently long to take food. As the day wore on his stupor became deeper, until finally he could not be aroused. There were no convulsions. On examination he was found to be quite stuporous and exceedingly limp. The temperature was 36.4 C. There were no other abnormal findings. A blood sugar taken at once was 20 mgm./100 cc. Serum CO_2 was 30 vols. %, and the urine contained 4+ acetone. He was immediately given 7½ cc. 50% glucose intravenously with dramatic effect. Before the injection was completed he began to rouse and within a few moments was fully conscious. A sugar tolerance test yielded the following:

Fasting	77 mgm./100 cc.
½ hr.	112 mgm./100 cc.
1 hr.	104 mgm./100 cc.
2 mfs.	109 mgm./100 cc.
3 hrs.	90 mgm./100 cc.

He was discharged on a high carbohydrate diet and when last heard from had had no further attacks and was doing well.

Comment: This case is properly one of narcolepsy, probably resulting from hyperinsulinism due to excessive stimulation of the islets from the ingestion of large amounts of stolen sweets.

Case 3: 1st admission: R. R., a boy aged 3 years, was admitted July 5, 1930, in a deep stupor. He had awakened his parents early that morning by loud screams and was unconscious by the time they reached him, the stupor persisting. Significant in his past history was the fact that 4 months previously he had had an attack of vomiting with convulsions, followed by deep stupor that lasted for about an hour. The only abnormal findings at the time of admission were deep stupor with general relaxation, a constant bilateral Babinski, and absent abdominal and

cremasteric reflexes. The laboratory findings furnished no clue to the diagnosis, however, a blood sugar was not done. Because of 1+ acetone in the urine he was given 200 cc. of 20% glucose, plus 13 units of insulin, intravenously. Very quickly he began to toss wildly about the bed, and, to confuse the picture more, developed a complete left hemiplegia. Two days later the hemiplegia had entirely disappeared and neurological examination was negative. He was discharged without a definite diagnosis having been made.

2nd admission: On October 20, 1931, 15 months later, R. R. was admitted again because of an early morning convulsion followed by stupor. The day before entry he had developed a slight upper respiratory tract infection. During the 15 months that had elapsed since his first admission he had been well. This time hypoglycemia was suspected and the blood sugar, taken at once, was 32 mgm./100 cc. The attack was promptly relieved by the injection of 10% glucose intravenously.

3rd admission: R. R. was admitted for the third time on July 12, 1932. He had had a generalized convulsion early that morning with vomiting. When brought in he was having tomic and clonic convulsions. The blood sugar was 20 mgm./100 cc. He was given 250 cc. of 10% glucose intravenously with immediate recovery. A sugar tolerance several days later gave the following results:

Fasting	112 mgm./100 cc.
½ hr.	151 mgm./100 cc.
1 hr.	138 mgm./100 cc.
2 hrs.	117 mgm./100 cc.
3 hrs.	93 mgm./100 cc.

Comment: This is the first case to be reported of transient hemiplegia in a child apparently due to hypoglycemia. A short fasting period is the only etiologic factor apparent in this case.

CONCLUSIONS

1. Hypoglycemia as a cause of convulsions in children has been definitely established.

2. The paucity of the cases is due to failure of diagnosis rather than to rarity of the disease.

3. All cases of convulsions in which the cause is obscure warrant a determination of the blood sugar, and the study of every patient with epilepsy should not be considered complete without determination of the blood sugar level, preferably during an attack.

4. Cases of proved hyperinsulinism should be placed on a high fat, low carbohydrate diet, in order to avoid excessive stimulation of the islets.

DISCUSSION

Dr. Wingate Johnson: The one question that occurs to me is the second case that Dr. Adams reported, who had been stealing jam and

had eaten an excessive amount of carbohydrates. The cause of that was supposed to be over-stimulation. I wonder if it isn't also possible that the decrease of carbohydrates afterwards might have had something to do with the condition.

Another point that comes up is the connection between obesity and diabetes that has been noted often. The point has been brought up that possibly instead of obesity being a direct cause of it, that obesity is a symptom of hyperinsulinism, and that the excessive appetite causes the patient to eat so much and they get fat.

Dr. Keith: I am sure that we have an inspiration to take away when we consider the points brought out in this paper.

I think the tendency in the past few years has been to pass these children up who have convulsion attacks as simply having epilepsy, rather than going into the causes of it. I think a good many of these cases who have these attacks in their sleep, if we could make a detailed study, could be more properly diagnosed.

I think the situation as to whether we have been inclined to bring out associated with infection as a real factor in the production of epilepsy, or whether in view of the infection there is hypoglycemia. Ruling out the question of technique, I think the question to consider—are we dealing with a blood sugar which is responsible for the convulsive attacks.

I think that this is certainly a paper that to us today, confronted with convulsions in children, certainly is an inspiration to go home and study more fully, in more detail, our patients.

Dr. Bugg: I want to say, first, that what Dr. Adams said was very fine, and the presentation of it was very clear. Most of us have had a smattering of knowledge about this matter, but it is the first time that I have felt entirely clear on it.

I want to ask you about a case, I want to bring out the point—about five years old and had a history of convulsions, and this particular type was quite different from a child that wakes up in the morning vomiting and then became very stuporous and comatose. He had convulsions before he vomited, and he was brought in and it was the following day before we realized it could be hypoglycemia. In the meantime the child had had food, but was still in a stupor. It had a normal blood sugar. In other words, the point I would like to discuss is whether these children spontaneously would ever get up to a normal blood sugar with the stupor continuing, or whether the fact that it was normal in the beginning had anything to do with the case.

Dr. Adams: In reply to Dr. Johnson—I don't think there is any question but that the deprivation of carbohydrate after the child was caught stealing sweets was the immediate precipitating factor in the convulsions. It was felt that he probably had excessive insulin at the same time, due to over-stimulation.

I would like to emphasize that blood sugar must be taken during an attack. In Dr. Bugg's case, I would like to read an extract from an article by Cannon, McIver and Bliss. (Reads the extract referred to)

Metabolism undoubtedly is active in those children who recover spontaneously. Why the child should remain semi-stuporous over a long period, I don't know, unless it was the delayed effect of the stimulation of the brain. (Applause)

CHAIRMAN STREET: I would like to announce before the next paper that the North Carolina Pediatric Society will continue after this session.

REMARKS ON SOME COMMON EYE AFFECTIONS OF INFANCY AND CHILDHOOD

By DR. D. S. ASBILL, Statesville

CONJUNCTIVITIS

A frequent form of eye trouble to which children are exposed is conjunctivitis. The forms of conjunctivitis caused by organisms other than gonococcus are generally, though not invariably, of mild form, but in every case a smear from the eye should be taken, as it is impossible to state positively what the organism is by clinical examination. Most cases of acute conjunctivitis in children respond readily to the following treatment: One drop of 25% argyrol in the affected eye before and after irrigating the eye with 3% boric acid solution. The first drop of argyrol coagulates any mucus and pus present so that when the eye is irrigated masses of infected material are mechanically carried from the eye, thereby ridding the conjunctival sac of great numbers of bacteria. The second drop of argyrol then exerts an inhibitory effect on the growth of organisms. The above treatment should be carried out as often as necessary to keep the eye clean and free from pus. The annoying sticking-together of the lids at night can be prevented by smearing the lid margins with boric acid ointment and bathing this off in the morning with hot water compresses. In case corneal ulcers develop, 1% atropine should be used, but in another respect these ulcers must be treated in a different way from those which are not associated with a conjunctivitis. This treatment will be taken up under the head of corneal ulcers. In all forms of conjunctivitis due to bacterial infection, it is well to protect the other members of the family by preventing them from using the same wash cloths, towels, etc., that the patient is using, and the patient's well eye should be protected by using a drop of 25% argyrol in it every three hours.

Gonorrheal conjunctivitis is always a serious problem. Care has to be taken to prevent others from becoming infected, and the patient's well eye also has to be protected. It requires only a few minutes to establish a diagnosis by microscopic examination of a smear from the secretion stained by Gram's method. The well eye should be protected by a Bulla's shield. The affected eye should not be covered, but must be kept clean.

For this purpose frequent cleansing of the eye should be accomplished with 3% boric acid solution and 25% argyrol applied, as described above, every half hour or hour, as necessary, to keep the eye free from pus. In the beginning, application of 1% silver nitrate solution to the everted lids once or twice daily is helpful. Later the eye often does better under the frequent use of boric acid irrigations and argyrol which must be continued rigorously until several negative smears are obtained; otherwise, a relapse may occur. The gonococcus does not thrive well in the cold, and consequently ice compresses applied continuously to the affected eyelids are very effective in controlling this disease. The temperature of the lids and the conjunctiva of the eyeball can be considerably lowered by ice compresses and the growth of the gonococcus very materially inhibited. Injections of non-specific foreign protein is of benefit in the reduction of the brawny induration which develops in the conjunctiva, and I have found irrigation of the conjunctival sacs with 10% magnesium sulphate solution effective in reducing conjunctival edema. In case the infection came from a vulvo-vaginitis or urethritis in the patient, this, of course, should be eradicated. Complications must be treated if they arise.

CORNEAL ULCERS

The most common corneal ulcers in childhood are phylctenular. The symptoms are photophobia (sensitiveness to light), blepharospasm (squeezing the eyelids shut), pain, and poor vision. The treatment consists of rest in bed, rest of the eyes, the use of 1% atropine to keep the pupils dilated, bandaging the affected eye between treatments, and hot water compresses for fifteen minutes three times a day to the lids. Dark glasses reduce the photophobia. Elimination of sweets is desirable. The patient is required to take tonics, such as cod liver oil, in full doses, to keep the bowels regular, and to drink much water. All foci of infection should be removed and general hygienic measures adopted. Increasing concentrations of bacterial emulsion of killed tubercle bacilli are given if the intracutaneous test is positive and the general condition permits.

In corneal ulcers associated with a purulent conjunctivitis, it is a great mistake to keep the eye bandaged, because the retained secretion only irritates the eye and tends to keep the ulcer from healing.

IRITIS

Iritis is sometimes confused with conjunctivitis. In case of doubt, it is always safe to use atropine in children's eyes where iritis is suspected, and it is to be remembered that primary, acute, congestive glaucoma is never found in patients below the age of twelve.

The treatment of iritis consists of rest in bed, keeping the pupil dilated with 1% atropine, hot water compresses to the eye fifteen minutes three times a day, rest of the eyes, non-specific protein injections, relief of pain by means of aspirin in full doses, and careful search for and removal of the cause. This always calls for a careful, general, and special

history and physical examination and at least urinalysis, Wassermann, and intracutaneous tuberculin tests. In this connection it should be stated that any pathological eye condition requires a thorough general examination including laboratory tests.

EYE INJURIES

Any through and through cut involving the lid margin should be very carefully united so as to prevent notching of the lid. Injuries to the cornea such as scratches, etc., or trauma due to the presence of foreign body, which should always be removed as easily as possible, should be treated by instilling into the eye 1% atropine solution, 25% argyrol, and the application of a bandage. The child should be kept in bed and prohibited from using his eyes. Corneal ulcers and abrasions are usually easily seen by instilling a drop of 1% alkaline solution of fluorescein into the eye or by using a drop of 1 or 2% mercurochrome. The ulcerated or abrated surfaces stain green with fluorescein and red with mercurochrome.

Perforating wounds of the eyeball occur more frequently than might be supposed, sharp sticks, scissors, and pocket knives being the most frequent instruments causing the wounds. Such sharp objects should be kept away from children. In case the iris prolapses, the prolapsed portion should be cut off immediately. The possibility of tetanus in perforating wounds of the eye should always be borne in mind and the usual prophylactic treatment instituted. The danger of sympathetic ophthalmia from perforating injuries of the eye should be constantly kept in mind, and any eye which is hopelessly mangled or in which an iridocyclitis persists without improvement for more than two weeks should be removed, unless there be some extenuating circumstances. Any eye in which the possibility of intraocular foreign body exists should be X-rayed.

REFRACTIVE ERRORS

Children are frequently handicapped because of refractive errors which produce imperfect sight, and without clear vision the child cannot but miss, or have inaccurate ideas about, much that surrounds him. Before the vision of school children was so generally taken, and even now, students were sometimes considered stupid or poor scholars when glasses might have corrected their trouble. A child may need glasses for correction of myopia (near-sightedness), astigmatism, or hyperopia (far-sightedness) singly or in combinations. Depending on the type and degree of refractive error, the amount and character of the work done, and the temperament. A child may have one or more of the following symptoms: Poor distant vision, poor near vision, blurring of vision on reading, headaches, pain in the eyes, tired eyes, redness of the lids, sties, hyperemia of the conjunctiva, general fatigue, and nervousness. Few exceptions apply to the rule that, in children under twelve years of age, one per cent atropine sulphate should be used as a cycloplegic three times a day for three days and the patient examined on the morning of the fourth day. A careful

examination of the eye muscles is most important as part of the post-cycloplegic test, which should always be made. Symptoms due to refractive errors are relieved by the proper glasses in nearly all instances.

SQUINT

The eyes are generally but not always crossed so that one eye seems to look straight forward while the other turns inward toward the nose. This affection may be due to paralysis from trauma or disease in which case removal of the cause usually tends to relieve the condition. Squint may also be due to other causes, the principal one being far-sightedness with or without astigmatism, generally producing a convergent, concommitant squint. The treatment first consists of refraction, providing the proper glasses, and the use of orthoptic exercises where indicated. If the glasses and exercises do not correct the squint while being used, surgery is then indicated after a reasonable time which cannot be arbitrarily stated. The important thing is to correct the refractive error immediately and not to rely on the child to "outgrow" the condition, for to do so may soon cost the useful sight of the squinting eye and ultimately require an operation to correct the squint, after which glasses must generally be worn any way. Early use of glasses in strabismus often prevents great loss of sight. Children with squint usually wear glasses readily at two years of age. Operations are generally best deferred until about six years of age.

CATARACT

If the child has useful vision, the cataracts are best left alone. In case the vision is or becomes useless because of the cataract, removal of the lens is generally advisable. Each patient must be considered individually, recalling that the removal of the cataract will probably give good vision, but that such removal prevents focusing for distances other than those for which a correcting lens is worn. In case of dense congenital or traumatic cataracts which will undoubtedly prevent useful vision, removal during the first few weeks or months of life is advisable.

DISCUSSION

Dr. Kutscher: Mr. Chairman: Dr. Asbill has very interestingly discussed some of the common eye conditions as seen in children. Not long ago I read by a supposed authority that 80 per cent of the squint cases we see in children, especially referring to very young children, sooner or later must come to the ophthamologist. If that is so, I certainly have had a peculiar experience, because I think a great many, I won't say most of, but a great many of our very young children, infants, newly-born, etc., show a demonstrable squint which perhaps I can't recognize after they become older.

I was particularly interested in the subject of squint as Dr. Asbill described it. I rather take issue at the age at which he thinks the children can wear glasses. He suggests they can wear glasses at two years and

younger. That may be so, but I have in mind a particular case with a certain degree of squint, which fortunately isn't much, and if this child were to have glasses at three years of age, the optical individuals selling the lenses would have to put on an extra force to keep up with the demand, and his father would have to do something else than practice medicine to pay the bills.

CHAIRMAN STREET: Any further discussion of Dr. Asbill's paper?

DR. JOHNSON: Mr. Chairman: What I was particularly interested in was the use of argyrol in conjunctivitis before and after the boric acid solution. That is a very good point. I had never thought about argyrol as a coagulating agent. When I was doing obstetrics a good many years ago as a routine I used 25 per cent solution of argyrol instead of silver nitrate, and never had any bad results. I learned later it was an illegal thing to do. Silver nitrate is the prophylactic by law.

In the treatment of ulcers, Dr. Asbill suggested cod liver oil in full doses. I think it is far more humane to use halibut liver oil, which can be given in more concentrated doses, and I think is just as effective.

About the only thing I differ from him on would be the use of tuberculin. I know there is a difference of opinion about that, but personally, I am afraid of using it therapeutically. It is all right as a diagnostic measure.

I agree with what he says about the refractive errors in children. I think the error of refraction most often overlooked is farsightedness, for the reason that a farsighted child can see so well at a distance that the parents think he must have good vision. I think that child is apt to be inattentive in school. He would rather look out of the window than at his books, because he can see what is out of the window and can't see what is in his books.

DR. D. S. ASBILL (Statesville): I think that the use of halibut liver oil could certainly be an excellent substitute for cod liver oil, and I know all patients would thank Dr. Johnson for this change. At the same time, I have found that many children who have already taken cod liver oil do so with very good grace. I know that my own little boy swallows it with great gusto and asks for it every night. Older children who are not accustomed to cod liver oil would benefit by the halibut liver oil.

In connection with tuberculin, I might say that this agent is used not in the form of old tuberculin, but an emulsion of dead tubercle bacilli is given. This emulsion is started out in very minute doses of a 1 to 10,000 dilution. Three minims of such a suspension is the initial dose and a very careful check is made as to the temperature and any sign of any reaction is noted. If such a reaction should occur, the use of tuberculin would be immediately suspended. Also, I might say that before this treatment is given, these patients are gone over very carefully, the chests are examined

by physical methods, and an X-ray is taken of the lungs. If there are any suspicious symptoms, such as enlarged glands, these would have to be taken into consideration and due caution observed.

I might state that this treatment is carried out in New York City at some of the largest hospitals in the country doing this kind of work. I do think, however, that Dr. Johnson is entirely right in urging caution, because a great deal of harm might be done by the injections in an improper case. I thank you very much for this reminder.

On the subject of squint—the wearing of glasses can generally be taken up at an early age, although I recognize that there are some children that you would have to chain before you could get them to wear glasses. I have found that if you will have a child come into the office and not examine him at all the first time, but on the second visit, you can examine him very easily. If you will try to build up in this child's mind a pleasant idea of glasses, if you can get the parents to praise the beauty of glasses and the advantage of glasses to the child, in this manner you can get the child to accept them with very good grace in most cases. However, as with everything else, there are exceptions. In my experience, children wear glasses at from one to two years of age very satisfactorily. The important thing is that this wearing of glasses, if it be put off, may allow the child to become permanently amblyopic in one eye. (Applause)

Chairman Newman: We will now have Dr. Root's paper on "Intranasal Therapy in Children."

Dr. Myers Hunter is to open the discussion. If he is not here, Dr. McLean will discuss the paper.

INTRANASAL THERAPY IN CHILDREN

By Aldert Smedes Root, M.D., Raleigh, N. C.

Invasion of the nasal and pharyngeal mucous membrane by organisms constitutes the commonest type of infection seen in infancy and childhood. In spite of the finest talent in the medical profession, recourse to the most elaborate laboratories, financial provision for research, the results of treatment are probably no more efficacious than they were decades ago. I might go further and say that treatment may be less so, because we are dealing with more virulent infections of the upper respiratory tract today than were dealt with in the past. Any one of us who has been in practice for 10 or 20 years can testify to this increase in virulence, without consulting our records of children who have had acute otitis media and mastoiditis during this period.

Upper respiratory infections vary in intensity from a mild inflammation of the nasal mucous membrane—with resultant rhinitis and no constitutional symptoms, to a severe congestion of the mucous membranes of the nose, pharynx, tonsils and larynx—with marked systemic reaction as shown

by fever, prostration, vomiting and not infrequently parenteral diarrhoea and pyelitis.

The causative organism, probably stimulated by a filterable virus, may be a streptococcus, staphalococcus, influenza bacillus, pneumococcus, micrococcus catarrhales, or Vincent's spirella, or a mixture of these. The streptococcus plays the greatest havoc.

The treatment has always been and still is constitutional, and the use of various preparations locally, as nose drops, a spray, or direct applications. More recently bacteriophage in acute cases, and either stock or autogenous vaccines in recurring cases have been used.

Since the intranasal instillation of various drugs is the general form of treatment it seems to me that an academic discussion of its value would be well worth while at a meeting of pediatricians. The object of this paper is to provoke a discussion of this subject in order that we may be mutually helped by each other's experience. Certainly your views will be of value to me.

1. How much good is accomplished by their use?

2. Is definite harm caused by too frequent or too prolonged use of them?

3. Is there danger of producing acute otitis by the organisms being carried into the fossa of Rosemuller and thence down the Eustachian tube into the middle ear?

4. In order to avoid intranasal treatment for one reason or other, some pediatricians and otologists practice swabbing the throats of infants and young children at varying intervals. Is it judicious treatment to swab acutely inflammed tissues in a struggling child? Will the trauma incident to this procedure be compensated for by the benefits received?

5. Is the administration of bacteriophage either hypodermically or locally valuable and in these recurring infections do vaccines confer total or partial immunity?

6. During the past two years the question of aspiration pneumonia from the instillation of mineral oil in the nose has come under discussion. I have a letter in my files from one of the most outstanding pediatricians in America who holds the chair of Pediatrics at one of our best and most scientific medical schools, relating to this subject. In 24 cases of young infants who have died of bronchopneumonia, and who have had mineral oil introduced into the nares during the course of the infection, the autopsy has shown mineral oil droplets in the bronchi, bronchioles, and alveolar spaces. The result of this work, as yet unpublished, must give us pause in carrying out this special treatment, and yet how many of us after years of practice in pediatrics feel that real danger may result from it, except in cases of extremely ill or debilitated infants?

7. Is there danger of argyria from the prolonged intranasal use of silver salts, especially neosilvol?

Here I shall depart from my speculations and confirm the belief that there is a real danger which perhaps most of us do not fully appreciate.

In the December 1932 number of *The Journal of Pediatrics* Dr. Lawrence Royster reported a case in a child 5½ years of age who had developed this condition several years ago. This child had been subject to frequent upper respiratory infections complicated by several attacks of acute otitis media and had been operated upon for mastoiditis. A diagnosis of congenital heart disease had been made by the family physician. The history in her case brought out the fact that prior to the development of argyria her nose had been frequently irrigated with a solution of neosilvol—the mother thinks about a gallon in all. Since this case report I have seen 3 patients with this unfortunate condition.

Case 1: G. S., age 4½ years, is the only child of very intelligent and highly educated parents. She developed normally through the first year—weighing 21 pounds at 12 months of age. She was seen at this time because she had a mild upper respiratory infection. 10% neosilvol was prescribed and used for several days—the infection rapidly clearing up.

She was not seen again until January 1933—when she was 4½ years of age. During this time she "had never been sick enough to see a doctor," but each winter had recurring attacks of "cold" in her head. At such times 10% neosilvol nose drops were used by the parents. They stated that since November they had used it daily at 3 hour intervals. She was brought to the office on account of her peculiar pallor. Once the mother thought that the sides of the child's nose were smutty and attempted to cleanse the skin with soap and water. The physical examination showed a farily well nourished female child 42 in. high and weighing 38¾ pounds. The tonsils were distinctly enlarged. There was a post nasal discharge of mucous observed and the anterior chain of cervical glands were palpable. The skin showed uniformly the slaty grey pigmentation of argyria—more noticeable at the naso-buccal fold and in the areola of the nipples. The buccal, tonsillar and pharyngeal mucous membrane show the pigmentation. The Wbc was 10,350, Rbc 3,460,000, and Hb 72%. (Dare)

Case 2: This child was seen first at the age of 4 months at which time she was distinctly undernourished—weighing 10 pounds, 2 ounces. Two months later at the age of 6 months, she weighed 14½ pounds—a gain of 4 pounds, 6 ounces—and was making very satisfactory progress. She was lost sight of until 5 years of age at which time she was brought back because the mother feared the child had heart disease on account of the greyish color of the skin. There had been no shortness of breath. or swelling of the ankles, and she played with normal activity.

The history since the last examination was that this patient had been subject to frequent attacks of tonsillitis—5 or 6 through each winter, and during these frequent infections neosilvol had been used intranasally. Her tonsils were removed last December, and it was last summer that the skin was noticed to have assumed an abnormal appearance.

The physical examination, February 1933, showed a fairly well nourished female child, her height 42¼ inches and weight 40 pounds. The skin, areola of the nipples, mucous membranes were characteristically slaty grey in color. There was a soft blowing, systolic murmur over the base of the heart, heard at the apex and not transmitted, and there was no cardiac enlargement. Otherwise the physical examination was negative. The Wbc was 11,900, Rbc 4,240,000, and Hb 75%.

Case 3: The only child of Hebrew parents developed normally through the first year of life. He weighed 20-8 at 11 months and the physical examination was negative except for enlarged tonsils and adenoids.

At 2½ years of age he weighed 30 pounds and his height was 37 inches. At this time he was pale with poor appetite and suffered with obstinate constipation. His tonsils and adenoids were still larger than normal and they were removed 6 months later. From birth he has had recurring attacks of infections of the nose and throat. Neosilvol was prescribed for the first one of these attacks at the age of 6 months—and the infection cleared up after three or four days. With subsequent attacks the mother has used this preparation—sometimes keeping up the instillations for a month at a time.

He was seen March 11, 1933, age 6½ years, weight 48¾ pounds, height 48½ inches. Apart from his undernutrition and moderate secondary anaemia the physical examination was negative except for the uniform discoloration of the skin. The greyish metallic color was characteristic of argyria—and there was moderate argyrosis of the mucous membrane of the mouth and conjunctiva. Wbc 9,150, Rbc 3,870,000, Hb 70%.

These three cases have come under my professional observation, and quite recently I have seen,—not professionally—two other children, a brother and sister, from a neighboring town, who had severe argyria from the use of neosilvol.

I do not believe that the medical profession in general recognizes the danger from the prolonged or frequent use of silver salts in upper respiratory infections.

At a time of imperative economy, such as this is, one can hardly blame the public for curtailing their doctors' services as much as they safely can. It seems logical to many parents to repeat over and over again a simple measure such as neosilvol nose drops whenever their children have "colds" —especially when it has been prescribed previously by one of us—during one of these acute infections.

It is not remarkable that they should continue the use of a preparation which they can secure from any drug store without a prescription and without any restrictions.

Neosilvol containing 20% silver iodide has been convenient because of its cleanliness and freedom from staining.

It is possible that other silver salts, not possessing these virtues, would cause argyria if used to the extent that neosilvol has been used.

It is dangerous for the public to have access to a drug which may so easily result in permanent harm.

DISCUSSION

Dr. McLean: Personally, I don't really see that the instillation of drops in the nose has any effect on the course of an acute intranasal infection. I remember very well several years ago in the Willard Parker Hospital that they did not use any intranasal therapy at all. There is only one drop that has any value in the nose, and that is in the case of a nursing baby whose nostrils are stopped up. In those cases I like to use a one per cent solution of ephedrine in oil.

As a therapeutic agent, silver salt solutions in the nostrils have very little real value.

This paper has covered the subject well. I think we have a tendency to use drops in the nose promiscuously, and I really don't believe in the end that they do produce any results that are worth while.

I want to thank Dr. Root for his paper. (Applause)

Dr. Butler: It is a great source of regret to me that Dr. Root has not had good results from nasal therapeutics, because we all know in the practice of medicine outside of hospitals we have to use a little psychology with children. We all know that the majority of those cases do not get well through the medication. In private practice, because of psychology, you have to treat the mother and the relatives as well as the baby. And in spite of the fact that Dr. Root has had such unfavorable results from the use of oil and the silver nitrate, personally, I haven't seen such results. (Applause)

Dr. Segrave: Mr. Chairman: I have had occasion to see probably half a dozen cases. I saw two of these cases that Dr. Root spoke about, and I don't think there is any question but what it was caused by the continued use of neosilvol. I have in mind three or four other cases produced by argyrol. I believe that in these cases that have these symptoms, as Dr. Root brought out, the mothers are using it continuously, year in and year out. I feel that the cases that I have seen certainly are in the minority compared with the number of cases that have used intranasal therapy and not gotten it.

But I do feel Dr. Root's paper is very timely to let us take account of what we are doing. And I think the three cases that Dr. Watson and myself have in mind are caused by argyrol, and they use it freely. The child has a cold and they use it, and they keep it going indefinitely; and I don't feel there is any question of doubt but what it is a definite factor.

Dr. Bugg (Raleigh): Mr. Chairman: I would like to say that we got in touch with all the druggists in Raleigh and suggested to them that prescriptions for silver salts nose drops be not refilled unless the physician

be consulted. These men showed a fine spirit of cooperation, and such a plan will throw a safeguard around the use of these drugs.

Dr. Kutscher: Mr. Chairman: I am particularly interested in this subject of argyria. I haven't see a case of it. I think it is a good caution for us all. Recently we have been the recipients, you probably as well as myself, of a paper written by some authority, (at least according to the number of hospital appointments he has), put out by the Barnes Company, who are the originators and distributors of argyrol, and they claim this argerosis does not develop, even with a high concentration, as much as 50 per cent of argyrol.

Dr. Asbill, who has already demonstrated his ability with eye conditions, gave me some time ago a very good idea, I think, which is used very much along psychological lines, because I don't believe any preparation does very much good. But he suggested the use of a weak solution of ephedran in normal saline, and I feel we might have gotten some results with that. And recently I have added a weak solution of merthiolate.

We have these patients to take care of, and if we don't do something for them in the private homes, we are not going to satisfy the mother or the father; and as Dr. Butler says, the relatives. Some Russian physician has said when he was called to treat a family, "To tie the dogs and the relatives, and then he will come." (Laughter)

Chairman Street: I was hoping someone would suggest the fact that if you use any sort of drops and use them long enough, you will get the condition you are trying to treat. It doesn't make the slightest difference what you use if you use it long enough you will get that discharge; and the longer you treat it, the more you have.

Dr. Root will close the discussion.

Dr. Root: I very greatly appreciate this discussion of the paper and I am not attempting, as I say, to solve these questions by expressing my own opinion. I wanted this discussion for my own edification. Since these cases of argyria have developed we have abandoned the intranasal use of neosilvol and other silver salts preparations. We are certainly not justified in running the risk of inflicting upon our little patients a terrible handicap through life, especially in the case of girls whose looks are impaired and hence the chances for matrimony are lessened. This is especially true since any beneficial result from this treatment is very questionable.

I think there is a definite tendency for certain individuals to develop argyria and that there is a definite familial susceptibility.

Chairman Street: The next paper on the program is by Dr. Thomas J. Sasser, of Charlotte, on: "Nutrition and Development of the School Age Child."

I will ask Dr. McLean to open the discussion.

NUTRITION AND DEVELOPMENT OF THE SCHOOL-AGE CHILD

By Dr. Thomas J. Sasser, Charlotte

We have long passed the time when the law of the survival of the fittest held absolute sway and only the strong and hardy survived to hand down life and vigor to succeeding generations. Most medical men concentrate their attention on earlier years of infancy and the pre-school period, leaving, it seems to me, too much to be done by the non-medical school authorities and public health workers who are dealing with children in large groups and who have neither the time nor the training for treating them as individuals, each with a particular problem. A second reason for consideration of the school-age child is that during these years of rapid development it is difficult for parents and teacher to know at what point the child might be subjected to physical or mental overstrain. A thorough investigation by an interested, competent, medical man may avert this; is it absurd to hope that the cursory examination of a school nurse would suffice. No doctor would hesitate to render such service. A third reason for confining my remarks to the older-age group would be to keep it as free as possible from the somewhat tiring subject of calories, vitamins, and the mass of statistics, tables and charts in the text-books and periodicals, all of which prove little or nothing.

Any one sufficiently interested may consult the writings of many who are successfully putting into practice the recent brilliant discoveries in the science of nutrition. If some one or two of you may be led to give more thought and attention to this group, which is gradually getting out of the hands of *any* doctor, and make your service available to all those up to fifteen years, then you will, in some measure, overcome the increasing tendency of the laity to look upon you as the "baby doctor."

There is some hesitancy on the part of a few parents to bring in an older boy or girl to the pediatrician, even though we take care of the younger members of the family during infancy and the pre-school age, because of timidity most children feel during the awkward adolescent period. It is during these years that most of the so-called diseases of childhood and most physical defects are acquired. Knowing the life history of a child would certainly place one in better position to deal with the malnourished states, the poor-posture children, the nervous school child, home and school problems, as well as the more serious physical and mental maladjustments through which so many children of this older age group must pass.

The average pediatrician's thought is the well-being of the child from the day it is born and he will usually insist on periodic examinations to insure a healthy start in life. It is equally important, insofar as he is able, if the parents' co-operation can be obtained, to follow the child at least through the first year of adolescence.

The growth period particularly neglected is pubescence. It is reached earlier in girls than in boys, and requires special nutritional and psychologic supervision if the profound physical and mental changes taking place in the individual are to be properly dealt with. It is the age of great expenditure of energy and sufficient food must be taken to supply the energy and the requirements for growth. The importance of rest will be mentioned later on.

Probably our best single criterion for determining the general condition of the child is the relationship of age, height, and weight. The program of weighing and measuring school children, as conducted by school nurses, served well the purpose for which it was originally instituted; which is calling it to the attention of parents of certain children that these children present deviations from the normal which should be called to the attention of the family doctor.

Normal weight is not the only index of good nutrition. Other signs of value are:

1. Good skin color and good condition of hair and nails.
2. Eyes lustrous.
3. No fatigue circles or hollows under eyes.
4. Flesh firm.
5. Posture and carriage good, step elastic.
6. Cheerful, optimistic and interested.
7. Enjoys physical and mental activity.

Consideration of these signs will help in deciding whether or not a child should have the care of the family physician.

There can be no doubt that infections will sometimes prevent a child from gaining properly. Diseased tonsils and adenoids have been blamed for almost everything; but whether or not they should be removed is no matter to be decided by a school nurse. Many times, in their zeal for doing something spectacular and which will look impressive when the reports are handed in to their superiors, an over-zealous school nurse will promise a correction of the nutritional disorder by the simple procedure of removing tonsils and adenoids. Occasionally it works. If the damage being done to the child by actually diseased tonsils makes it necessary, they certainly should be removed, as should any other infectious process in the body; but this is something that no school authority should be empowered to order. A wise and conscientious inspector or nurse will exercise the greatest care in promising improvements such as we have so often seen held out as inducements to hesitating parents in order to gain consent to such operations upon their children. Imagine the embarrassment of the operator in one of these charity clinics to find patients of his, whose parents are fully able to pay for his services. So much for generalities.

Nutrition has much to do with the child's constitution, in that it may furnish nutrients just sufficient to maintain life, with growth more or less

stationary, or it may be optimal in quantity and quality to supply all requirements for ideal growth. Development is associated with the mental well being of the child, his behavior or emotional characteristics. Habit formation begins at birth, and it is the responsibility of parents and of the physician to see that a proper beginning is made. Good behavior is determined by sound habits begun early in life; bad habits will greatly handicap a child in his later social contacts and in his emotional stability, and often it lowers nutrition through failure to take and assimilate proper food. The often-heard plea of mothers for something that will make her child eat, may often best be tackled by correcting faulty habits.

It was not so long ago that the authorities on nutrition were stressing the relative importance of fats, proteins and carbohydrates, and just so many calories of each in order to make up a balanced diet. Then we were bombarded with the supreme necessity of vitamins, six of them being generally recognized and we are by on means certain that the list is yet complete. The mineral constituents of the diet include a long list of necessary elements, among those recognized in practice as most likely to be deficient are calcium, phosphorous, iron, and iodine from South Carolina. Water and roughage are essential. We must know these things about foods to be able to construct an adequate diet. What our patients want of us is to take all this technical knowledge and translate it into terms of foods which can be bought in the market.

It is desirable to always include a liberal quantity of milk, whether used in cooking or to drink, since milk from proper sources and properly prepared contains in adequate amounts a considerable number of the vitamins, minerals and proteins which might otherwise be deficient in the diet. One of the dangers of some of our dietary habits lies in the extensive use of highly refined cereal products by most of our population and advertised extensively to attract the attention of children. Another danger is that, despite our relatively high national consumption of fruits and vegetables, these are insufficiently used by many children.

My observations of a group of 114 orphanage children are interesting. This group has many advantages not enjoyed by the average child of school age in the Charlotte city school system, in that they are subjected to a regular routine as to eating, sleeping, and play hours, getting enough of each but no excess of any, especially of play, which tends to use up energy that should be conserved for building up body tissues. These 114 children range in age from pre-school or kindergarten through the senior high school. The different age groups occupy separate cottages, and the rules applying to the younger children naturally do not hold with the older. These children attend public schools, carrying the same course of study required of others, and it has been noteworthy that with the exception of the common communicable diseases, they are less susceptible to the more serious illnesses. Inquiring into the possible causes for this evident immunity, the dietary of these children was found to be as follows: milk

and butter from a herd owned by the orphanage; eggs; vegetables which do not come out of cans; meat always fresh and of good quality; cornbread; corn flakes; grits; peanut butter; biscuits or toast; jam; and fruits, more often fresh than canned. The superintendent orders apples by the barrel, and it is of frequent occurrence that these children are seen eating raw apples, carrots, or turnips, to tide them over until the next mealtime arrives. It is significant that the dietitian, in furnishing this list, specifies cake or pie for dessert once a week. An infirmary, with a graduate nurse in charge, is open the year around. Examination of the records of admissions to the infirmary reveal the fact that about one-third of the total admissions were for simple colds; but not a child has developed pneumonia in the last two years. These 114 children of school age made an average yearly gain of six pounds per child on this simple but admirable diet. These children are not allowed to keep late hours. Emotional stress is held down to a minimum. They are allowed to see only an occasional selected moving-picture, and are not subjected to family strain.

Observations among children of another group of 40, selected because of their extremely malnourished condition and placed in the Sunshine School, are also of interest. Here they have the advantage of carrying on regular school work, with certainly much less excitement than prevails in larger, more crowded, class rooms. They further have the advantage of a hot meal during the morning period, followed by an hour for rest. The ages of this group range from 6 to 14, and are about evenly divided as to sex. Many represent families in which thinness is the rule, and some are from neurotic, emotional, or over-active parents. These children seem to lack endurance, being easily tired by regular school work, which, in most instances, is found to be faulty. Most of these underweight children have poor appetities; some have been given cod liver oil, yeast, iron, arsenic, and various proprietary health restorers, and still the child has not gained, simply because the food intake has been inadequate for energy expenditure and growth.

Three typical cases are cited:

Case 1: A 13-year-old girl, which chorea, 16% underweight, who started in school when she was six years old, did very poorly in her school work; tonsils and adenoids were held to be at fault, and were removed in a school clinic when she was 8 years old. She was persistently underweight until the time she entered Sunshine School. Examination of the urine and blood revealed no trouble. A year in attendance at the Sunshine School, where a regimen of rest, food, and lessening of excitement, produced a weight gain that approximates normal.

Case 2: A 14-year-old boy, with congenital heart disease, was admitted because of this handicap. He also was 12% underweight, due to the fact that rest could not be enforced during the ordinary routine of school work. His parents were prevailed upon to admit him to the Sunshine School,

which proved a blessing in that not only was rest carried out here, but a normal gain in weight was brought about.

Case 3: A boy of 12, in whose home had lived and died a tubercular aunt, and whose mother had been under close observation for a long time. An X-ray examination showed him to have an active infection of the tracheo-bronchial lymph nodes, and he was admitted to the County Tuberculosis Sanatorium, where he remained for ten months, after which time it was thought safe to permit him to return home and continue his school work, getting the rest and good food which was furnished all of this group of children.

All thin, well children may be made to gain in weight, providing we reduce the energy output, increase the food intake, and remove any irritant factor in the environment that may produce adverse mental reactions, such as an unsympathetic teacher or an uncongenial, teasing older brother or sister. Often it is not possible to reduce a child's activities without discontinuing school attendance.

Dr. T. D. Wood, of Columbia University, estimates that among the 27 million children in our public schools, 5 million have some degree of malnutrition and 25 per cent of these have to repeat a grade some time during their life because of this. The cost and waste of this is enormous. Physicians dealing with these children should put forth every effort that the child's physical development keep pace with his mental growth. If this normal comparative rate is not maintained, it is often the result of improper or insufficient food, lack of rest, overstimulation of children of unstable nervous systems, or worry over home or school problems. Poverty may be the direct cause of faulty nutrition, but the indifference or the ignorance of parents is a more important factor. Fatigue, mental and physical, lowers efficiency. It it is due to absorption of body toxins, because of improper elimination of body waste products, insufficient sleep, overstimulation or excitement, worry over prospective failure in school, incompatibility with teachers, or sexual manifestations, the physician can do great service by delving deeply enough to find and help remove the cause.

It is said that the pediatrician is a general practitioner, in that his special interest is in an age period. Let us extend our interest at least to the age of puberty, because we are interested in the whole child, and not in some anatomical part or system of the body, or in some special disease, but in all things concerning children. Let us also bear in mind that it is too much to expect an undernourished child to profit by educational advantages, no matter how superior these may be. You cannot fill the head when the stomach is empty, nor can you expect application or concentration of mind from an anemic nervous child.

In the preparation of this paper I have freely consulted textbooks and articles appearing in medical journals and lay publications. I wish to express appreciation of the splendid chapter on Growth and Development

by Dr. Blackfan, in the Reports of the White House Conference on Child Health and Protection, and to Dr. Myers Hunter for encouragement and for suggestions contained in the Article, The Length of the School Day, which was published in the September 1932 issue of *The North Carolina Teacher.*

DISCUSSION

DR. MCLEAN: Mr. Chairman: I think Dr. Sasser has certainly waded into a large subject, the matter of the nutrition of the school child. He has covered it very well.

I don't think we should base children's weight entirely on the standard tables. You have got to know the parents before you can tell them whether their children are underweight or overweight.

Some time ago a mother brought her baby into the office. The mother weighed 90 pounds, and her husband 110, and the baby, according to the tables, was decidedly underweight. It took me quite a long time to convince the mother that her baby was normal in weight.

Dr. Sasser mentioned the school inspection of tonsils. I don't think that any school nurse or school inspector can look at a child's tonsils and tell whether they have anything at all to do with the child's nutritional condition. You have got to have a careful history and know something about the child before you can condemn the tonsils.

In Charlotte we don't have a school physician, but we do have school nurses, and they are doing a most excellent work. They draw the attention of parents to children that are considerably underweight, and give them a slip which they take to their family physician. The morbidity in our schools has been cut down considerably since the inception of the nursing system.

I think Dr. Sasser has presented a very valuable paper on this subject.

CHAIRMAN STREET: Any further discussion?

DR. JOHNSON: The doctor brought out one point that is my hobby. Dr. Street and I were appointed on a committee to try to shorten the number of school hours for the first three grades in school. We are all familiar with the scheme that was tried in Richmond about six years ago, in which for one year one school had the hours shortened for the first three grades, and another school has used it as a control. At the end of the year they found the children in the test had gained a little over five pounds in weight, as against 3.8 pounds for the control group. The A's on deportment were 18 per cent more in the short hour school. The percentage of fatigued children, according to the teachers' statements, dropped from 62 per cent to 19 per cent in the short hour school. And what is unbelievable, almost, but they had the figures to show it, there were six days lost on account of sickness in the control group to every day lost in the test group.

Dr. Street and I were on the committee that met with the School Board, and they have agreed to try this limited experiment for a time.

Dr. Morris (Oxford): This subject is very interesting to me, because there have been enough of those cases of bad tonsils removed against the benefit of which there isn't any evidence. Immediately the child begins to grow and show the effects of that which has been removed; and that is hard to interpret, especially if it happens to be in the boy or girl before that age when they begin by nature to take on special growth. That has always to be taken into consideration when you are evaluating the results of the operation in a boy or girl.

I would like to call the profession's attention, because I am engaged in this work, to this fact: The average child that is underweight, undernourished, isn't sick in the sense of distress. We all know that there is more actual sickness without distress than there is with distress. As long as a child has no distress, the mother and father believe it is all right, and they are not going to seek professional advice at all.

Now, the nurse comes in there very handy to look in, especially when she has been studying the history of the child, partly in its daily life and partly in the school life, together with the teacher. The teacher helps her to know that there is something the matter with the mental life of the child, and the nurse knows that it needs attention that it will never get until somebody brings it to the attention of the physician. And she is very serviceable in that aspect of this work.

And I believe—I know it is so in my county—that a case is never operated on at the nurse's suggestion, except just to be referred to somebody who can judge. We do not believe ourselves that the nurse ought to decide those matters, but she certainly can initiate some very useful processes. And I plead with the profession either for a better education of the public to what sickness really is, or else let somebody else do the educating, (Applause)

Dr. Sasser (closing): I wish to thank the gentlemen for their discussions. I am sure that many of these children are overworked. As to the length of the school day, a very good arrangement has been worked out in Charlotte schools whereby the children of the first three grades in the elementary schools only stay for three hours, the last three for four hours. An hour study period in the afternoon is optional. Many can profit more by using the extra hour for study, as a rest period at home but no doubt in the majority of cases this is not considered of sufficient importance by the parent to be put into practice. Since the appropriations for school purposes have necessarily been greatly reduced, it is my hope that the school authorities will not put too much work on children unable to stand up under the strain, thereby inviting physical and mental disaster.

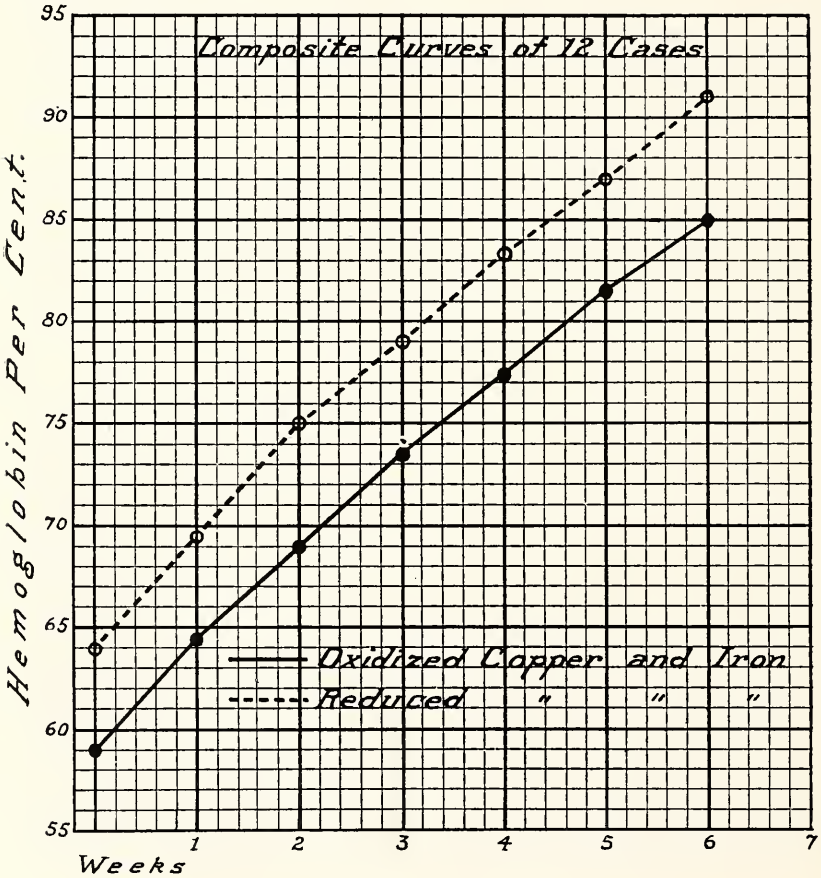
Chairman Street: The next paper on the program is by Dr. John Cason, of Durham, on: "The Effect of Copper on Anemia."

Before opening the discussion, I would like to appoint a committee to appoint a Chairman for this session for next year. On that committee I would like to appoint: Dr. Root, Dr. Ward and Dr. Keith.

TREATMENT OF SECONDARY ANEMIA IN CHILDREN WITH COPPER AND IRON

By Dr. John Cason
Department of Pediatrics, Duke Hospital, Durham, N. C.

The value of the administration of copper in conjunction with iron in the treatment of secondary anemia has been repeatedly demonstrated in animals,[1] in children[2] and in adults,[3] but more observations are needed on the optimal ratio of copper to iron and on the comparison of the effects of oxidized and reduced copper and iron. Accordingly, a series of children suffering from secondary anemias resulting from undernutrition or from infections were treated for a period of several weeks with various amounts of a flavored solution which contained different proportions of cupric sulfate and ferric ammonium citrate, or with capsules which contained cuprous and ferrous glutamate. The comparative effects of treatment with these two mixtures will be found in the following table.



Oxidized iron and copper. The solution used contained ten grams of ferric ammonium citrate and 0.5 grams of copper sulfate in one hundred cc. of a 25 per cent aromatic elixir solution. Such a preparation can be prepared at a cost of less than twenty cents per pint. The dosage used was 5 to 10 cc. three times per day, depending upon the age of the child. In this way the patient received daily 250 to 500 milligrams of iron and 10 to 20 milligrams of copper which is in agreement with the dosage of iron shown to be optimal by Minot et al.[4] Similar commercial mixtures were considered but the majority of them contained less than one third of these amounts of copper and iron, and these costs were many times higher. Other proportions of copper and iron were used at first in order to determine the optimal ratio. It was found that a higher ratio of copper produced nausea and vomiting in 20 per cent of the patients. Obviously, this complication would defeat the purpose of the therapy. The solution of choice contained a mixture of available copper and iron in the ratio of 1 to 25. It proved to be palatable, rarely produced unfavorable symptoms and permitted of an adequate dose of iron without an emetic dose of copper.

Reduced iron and copper. Because of the belief of some[5] that reduced iron is more efficient in the treatment of secondary anemia, ... children were given cuprous and ferrous glutamate, very kindly furnished to us for this purpose by the Calco Company. This material is made up in capsules each of which contains 30 milligrams of cuprous glutamate and 750 milligrams of ferrous glutamate. The dosage was three such capsules daily which provided the same amount of iron as in 15 cc. of the above iron ammonium citrate solution (oxidized iron). The proportion between the copper and iron is 1 to 34. In earlier experiments a proportion of one part of copper to 16 parts of iron was used, but over 50 per cent of the children receiving this mixture had nausea and vomiting. Apparently, the glutamate compounds are more nauseating than is the oxidized copper and iron solution. Due to the size of the capsules it was impossible to give them to children less than four years of age.

Discussion. As shown in the table, the infants treated were given various amounts of oxidized and reduced copper and iron preparations. Their hemoglobin content was determined at intervals by the Sahli method. Determinations were tabluated on a percentage basis, 16 grams of hemoglobin per 100 cc. being regarded as 100 per cent. While the children were in the hospital determinations were made at least once a week, but those that were observed in the dispensary had the examinations at longer intervals. Probably the hemoglobin content would have been recorded as rising more rapidly if examinations of the blood had been made at more frequent intervals.

SUMMARY

1. In a series of 12 cases of secondary anemia in children not suffering from any actual disease of the blood-forming or blood-destroying organs,

copper and iron were given in a ratio of 1 to 34 in daily dosages ranging from 250 to 500 milligrams of iron and 10 to 20 milligrams of copper.

2. Six of these children were given oxidized copper and iron, and 6 were given reduced copper and iron. As near as possible other factors were maintained constant.

3. The average time copper and iron were administered was 4.

4. The average rise in hemoglobin per week was 4.6%.

CONCLUSIONS

1. Administration of copper and iron in large amounts will increase the hemoglobin content of infants suffering from secondary anemia, provided there is not an active infection present during the therapy.[6]

2. There appeared to be no definite difference in the therapeutic effect of oxidized and reduced copper and iron, although the latter is more nauseating.

3. The ratio of 1 part of copper to 34 parts of iron is palatable, therapeutically efficacious, and will rarely produce nausea and vomiting.

4. An inexpensive and satisfactory solution of copper and iron is described.

No.	*Age*	*Cause of Anemia*	*Therapy Type*	*Therapy Duration*	*Adm. Hb.*	*Disc. Hb.*	*Increase in Hb.*	*Ave. inc. per wk.*
1.	6	Dietary	Glutamate	9 wks.	68%	96%	28%	3.1%
2.	13	Chorea	Glutamate	4 wks.	68%	88%	20%	5 %
3.	11	Hemorrhagic Nephritis	Glutamate	2½ wks.	70%	82.7%	12.7%	5.0%
4.	10	Empyema	Glutamate	8 wks.	61.4%	74.7%	13.3%	1.7%
5.	12	Chorea	Glutamate	2 wks.	70%	81%	11%	5.5%
6.	13	Excessive Men-struation	Glutamate	3 wks.	47%	69%	22%	7.3%
		Average Rise per week						4.6%

OXIDIZED IRON AND COPPER

No.	*Age*	*Cause of Anemia*	*Therapy Type*	*Therapy Duration*	*Adm. Hb.*	*Disc. Hb.*	*Increase in Hb.*	*Ave. inc. per wk.*
1.	10	Osteomyelitis		3 wks.	64%	73%	9%	3 %
2.	8	Fracture		3 wks.	74%	85%	11%	3.7%
3.	6 mos.	Dietary		2 wks.	61%	78%	17%	8.5%
4.	4	Empyema		5 wks.	63%	86%	23%	4.6%
5.	8 mos.	Dietary		2½ wks	50%	56%	6%	2.4%
6.	2	Hookworm		2 wks.	40%	50%	10%	5 %
		Average rise per week						4.53%

		Case one	*Case two*
1.	Case of Anemia	Dietary	Chronic Osteomyelitis
2.	Admission Hb.	68%	76%
3.	Time Treatment carried out	9 wks.	12 wks.
4.	Discharge Hb.	96%	80%
5.	Increase in Hb.	28%	4%

DISCUSSION

Dr. A. H. London, (Durham): We are certainly indebted to Dr. Cason for this excellent paper. I have seen some of these cases that Dr. Cason is working with and I am sure if you could see them you would agree with me that this preparation he is using is a very efficacious one. In these days when we all are bombarded by salesmen with iron preparations of a reduced or organic type, each claiming special virtues, it is quite a satisfaction to know that here is a medication which costs only about 20 cents a pint and which is just as effective if not more so than the more expensive ones.

Dr. John Cason (Durham): I would like to thank Dr. London for his remarks, and I would like to say that the chief objection which one may raise to the use of these mixtures is the fact that occasionally one does have nausea and vomiting, even in the proportion of one to thirty-four. And it is our intention to run a further series of cases in which we plan to decrease the amount of copper to, say, one-tenth of the amount used before, and in an attempt to see whether minute quantities of copper won't have the same stimulating effect upon the bone marrow.

This is in support of this belief—the fact that one group of workers in working with manganese stated that manganese compound had a similar stimulating effect upon the bone marrow as did copper. From this paper another group of workers who had used copper in their experiments obtained some of these manganese compounds from the first group, and on analyzing it, found that it did contain minute quantities of copper, and when that copper was removed, there was no stimulating effect obtained by the manganese.

If that small amount of copper will produce a stimulating effect, there is no reason why we should employ an amount which is close to the emetic dose. (Applause)

Chairman Street: Gentlemen: This closes our program.

The Nominating Committee has given me the name of Dr. Saunders, of High Point, as the nominee for Chairman of this Section for next year. (Applause)

I believe it is customary if anyone wishes to nominate anyone else, they have the privilege of doing so. What do you propose to do about this?

. . . A motion was made, seconded and carried that Dr. S. S. Saunders of High Point be elected unanimously . . .

Chairman Street: The North Carolina Pediatric Society will take over the chair now.

. . . The meeting adjourned at 4:40 o'clock P. M. . .

SECTION ON OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY

WEDNESDAY, APRIL 19, 1933

The Section convened in the Ballroom of the Hotel Sir Walter, Raleigh, North Carolina, at two-five P. M., Dr. C. R. Reaves, Greensboro, Chairman of the Section, presiding.

CHAIRMAN REAVES: Gentlemen, in the first place I want to thank the Section for making me chairman this year and, furthermore, I want to thank you for the response I have had in getting up this program. Practically every man that I wrote to responded immediately and it has really been a pleasure to get this program up.

We are supposed to appoint a committee of three to pass on the papers presented here and select the best one, and when a decision is reached they are to turn that decision over to Dr. McBrayer. I am going to appoint on that committee Dr. Barron, Dr. Lilly, and Dr. Newell.

SINUSITIS IN CHILDREN
(Chairman's Address)

By CHAS. R. REAVES, M.D., Greensboro

Sinusitis in children has become a problem of great importance because of its increasing prevalence, the difficulties encountered in diagnosis, and especially because of its resistance to treatment. For the past decade I have been impressed with the increased number of children coming in for the relief of intranasal infection. It has grown until today I believe it is one of the greatest problems facing the rhinologist. I do not believe we have more sinus infections than we had fifteen years ago, but previous to that time the condition was not recognized. Not alone is this a problem for the rhinologist, but it has become one of the most important problems for the pediatrician. The time has passed when the rhinologist can look at the nose and throat of a child, see enlarged tonsils, obtain a history of mouth breathing, do a tonsillectomy and adenoidectomy, and in doing so, be content. We are no longer content to remove the tonsils and adenoids in a routine manner without knowing something about the patient's general condition and the indications for surgical procedure.

In discussing sinusitis in children, we must consider the etiological factors concerned. In children, because the chronicity is not so great, they are not so difficult to discover; they are numerous and complicated. We must consider the following things: Allergy; deficient diet; metabolic disturbances; climatic conditions; poor hygiene, including improper clothing and ventilation; swimming; diseased tonsils and adenoids; endocrine disturbances; nasal blocking; infections, especially in contagious diseases.

There is little doubt that these factors, and probably often others, have much to do with sinus problems and are the primary reasons for infections taking place in an undetermined number of cases. There is, however, a decided question as to whether we are ready to say that most sinusitis is now due primarily to the direct effect of bacterial invasion as the result of acute infection. Is it the altered metabolism of the individual, or the bacterial factor, the major problem?

The ease with which infections invade the mucous membrane is dependent on one or more of the predisposing factors. In the absence of allergy, it is evident that a perfectly healthy robust child not only resists infection better than a poorly nourished child, but when infection is present, it does not have the same clinical significance as in the former. In the robust child it may be of little importance and can readily be eradicated, while in the poorly nourished child it may exert a deleterious influence and be difficult to cure. It is more important to know what prepares the tissues for infection than to know the infecting organism. If it were not for allergic states, nutritional disorders, and endocrine disturbances, we would not have many cases of sinus disease.

Malnutrition, chronic in children, is often associated with a chronic nasal sinus disease. Which of the two conditions is primary is often open to question.

Shurly has shown that Gram negative organisms in the nose and throat other than the meningoccoccus, as the micrococcus catarrhallis, become pathogenic when injected into animals fed on diets deficient in vitamin A. He further showed that changing the biochemistry often changes the course of the disease. He mentioned the seasonal variation in the virulence of the bacterial flora of the upper respiratory tract.

Following cold or influenza there is often a condition characterized by fever, slight leukocytosis, and often malnutrition. The child does not do well, and there is no nasal discharge. Examination usually reveals a nasal sinus infection. The nose may show no distinct evidence of disease of the sinuses. I think every child with an upper respiratory disturbance followed by fever in which there is no demonstration of ear or lung condition responsible, should be considered as a probable residual sinus case. If in such a case there is anterior cervical adenitis, with no tonsillar disturbance, one should consider that the trouble is probably in the nasal sinuses. At any rate the trouble is somewhere in or about the upper respiratory tract.

The most of the acute cases I see in the summer come from swimming. Dr. Taylor, Chairman of the Committee on Swimming Pools of the A. M. A., from his investigation, says that the infections of the sinuses are produced mainly from self-infection and less often from pool infection. He further advises against long periods of swimming in cold water, which produces the lowered body resistance, which tends to change an inactive nasal infection into an active infection.

Allergy plays no small part in nasal and sinus disease. Very frequently there is some object in the diet, the elimination of which will aid in the modulation or cure of the disease. The allergic nose must be watched for in children. It is important to have information regarding the number of eosinophils present in the nasal discharge. While the increase in eosinophils does not necessarily mean an allergic condition, or the absence of eosinophils exclude allergy, practically all the cases I have had with a marked nasal eosinophilia have been found to be allergic. Repeated examination of the nasal smears will often reveal a marked increase in the eosinophils which was not present on a former examination. Many of these allergic patients have unnecessary operations. There is no objection to operating on the allergic nose in children if they need operation. Many have a suppurative sinusitis in addition to the allergic thing. But to operate for the allergic condition, which will disappear with treatment is positively unjustifiable.

In conjunction with allergic causes, one must consider external factors, such as local atmospheric conditions. Under ordinary circumstances, the nasal organs can adjust themselves to the variations in the physical properties of the air, but they suffer in the event of unusual and unnatural states of extreme heat, cold and moisture. These extreme variations in the physical properties of the air, may paralyze the mechanism of reaction. This happens in drafts and in homes where the air is overheated, dry and contaminated. It is a common observation that the majority of respiratory diseases occur in the winter months. The physical properties of the air are most unfavorable at this time.

Adenoids and tonsils play the most important part in intranasal infections. This may be caused by an extension of the infection from the adenoids to the nasal mucosa, or it may be due to a blocking of the nasal secretion by the adenoids.

Symptoms of paranasal sinusitis in infants and children are nasal discharge and nasal blocking. Sneezing is frequent. Postnasal discharge is observed, but not complained of; it is swallowed. Pain is conspicuous by its absence, at least up to seven or eight years. Listlessness, peevishness, pallor, poor appetite, underweight, plus the above suggest a chronic sinusitis. This is especially true where the tonsils and adenoids are out. Repeated colds with thickening of the lateral pillars and enlargement of the cervical glands are significant; repeated otitis media is likewise suggestive. Persistence of one indicates chronicity of the other.

In diagnosis attention must be given to a careful history, including family tendencies. Transillumination is of some diagnostic value, but is not to be considered as reliable as in adults. Nasal discharge, thin and watery, purulent or muco-purulent, may or may not be present. The nasal mucosa may be congested and irritated, or pale and boggy, especially when there is an associated allergic condition. Or in some instances, the appearance may be practically normal. Polypoid degeneration is much less

frequently found than in adults. Supra-orbital headache and pain is not so frequent as in adults, and is very rare in children up to seven or eight years of age. Well taken, and carefully interpreted, X-ray films are indispensable in making an accurate and complete diagnosis, and should be carefully studied by the rhinologist as well as the roentgenologist, especially if operative measures are anticipated. Clinical evidence must be compared with the roentgenologist's interpretation.

Lynman Richards reported, at the American Academy of Otolaryngology and Ophthalmology, an interesting study of the results in five hundred cases of sinusitis treated in the Children's Hospital in Boston, during the past fifteen years. He made this statement: "In reviewing these records, one is impressed with the extraordinary complexity of the situation. In addition to their sinusitis these children often were under treatment for other diseases which may or may not have had a bearing on the sinus condition. This treatment was frequently shifted from one form to another. Their living conditions, diet and habits of work and play were a constant factor, and the element of allergy was often creeping in to complicate matters. One is left with the impression that unless a child can be isolated and controlled in respect to its activities, its environment and its treatment, sinusitis will remain a difficult problem to solve."

Dr. Alden, in discussing Dr. Richards' report, made this statement: "Chronic Sinusitis is the problem that we are all concerned with today. Personally, I have no conclusions about this condition at all. My mind is really in a very chaotic condition. I have been treating these cases for years, considering them perhaps largely surgical, and getting results, of some of which I was not particularly proud. The more of these cases I see the more I am convinced that a large percentage of chronic sinusitis in children is merely a local manifestation of some chronic dyscrasia in that child. The majority of these cases in my hands in the last two years have done much better under medical than under surgical treatment. I am trying to get a better understanding of the fundamental physiology of the nasal mucous membrane in its relation to the other tissues of the body; a better understanding of the interchange of fluids between mucous membrane and other tissues, and perhaps a more adequate comprehension of some of the fundamentals of proper nutrition for the child."

The first step in the treatment of nasal sinus infections in children is the eradication of the cause. Only by taking into consideration allergy, diet, endocrine disturbances and all systemic etiological factors above mentioned, can we possibly treat the condition with any success.

Local treatments must be continued over a long period of time, depending upon the pathology present. The cure is often more apparent than real, especially in warm seasons. Drainage and areation of the sinuses must be maintained long after symptoms subside. This is probably best done by a suction drainage; well directed home medication, such as

ephedrine solution, silvol and argyrol are valuable at times, but the indiscriminate use of nose drops are doing harm.

Regulate diet and correct nutritional disturbances as far as possible. The use of foods normally containing the desired vitamins is preferable to the use of concentrated vitamin preparations in most cases. The diet should have a liberal amount of milk, cream, butter, eggs, vegetables and fruits.

It is essential that these children should lead a normal outdoor life; do the things that normal children do. There is no reason why they should not swim if the usual precautions are taken; as to the length of time that they should stay in the water, keeping the head out of the water, etc. They should lead an outdoor life, especially during the summer months. After such a summer they are usually better so far as the sinus trouble is concerned, and each year they go through the winter with less trouble until a final satisfactory result is obtained.

If there is an allergic state, an attempt is made to identify the allergin and to eliminate its contact if possible, or else to increase immunity to it. These studies should be made by an experienced allergist.

Surgical procedure should be conservative. Diseased tonsils and adenoids should be removed; ventilation and drainage with the least possible destruction of the intranasal structures. Local and systemic treatment should be continued for several weeks after operation.

No discussion on this subject would be complete without paying tribute to Dr. L. W. Dean for his wonderful work.

In conclusion:

1. If we are to make progress, rhinologists must be internists with special rhinological training.
2. It is more important to know what prepares the tissues for infection than to know the infecting organism.
3. There must always be a thorough co-operation between the rhinologist and the pediatrician.

Chairman Reaves: Dr. Key, who is our next speaker, will be a little bit late in getting here so we will call on Dr. C. W. Bailey at this time for his paper, "Modern Surgery in Diphtheria, with Conclusions from Six Thousand Eleven Cases."

MODERN SURGERY IN DIPHTHERIA, WITH OBSERVATIONS FROM SIX THOUSAND ELEVEN CASES

By Dr. C. W. Bailey, Rocky Mount, N. C.

A review of the literature of the past few years dealing with this type of work is very disappointing, first, because of the small number of articles written, second, because of the few cases reported upon in most of the articles, and third, because none of them have covered all the

surgical problems encountered when handling a large number of diphtheria cases.

Of my series of cases five thousand nine hundred and ninety-three were under my observation and care at the Philadelphia Hospital for Contagious Diseases, at which I was Chief Resident Physician and also assistant to the Otolaryngologist. Since there was no regular visiting Otolaryngologist on the staff, practically all of the work fell in my hands. The remainder of this series of cases was admitted to my service at the Park View Hospital, Rocky Mount, N. C., during the past thirty months. Complete statistical data has not been compiled because I failed to do it before leaving the former institution some four years ago and have been unable to get it completely done since; however, partial statistics have been obtained.

In all of the latter series of cases and approximately one-fifth of the former series the diphtheritic involvement was of the lower respiratory tract, and therefore they became cases for special surgical treatment. These cases came from all walks of life, but the majority of them came from the poorer crowded districts. All of the cases of upper respiratory tract involvement came from families of the lower and middle classes of people and in general had not had the advantages of preventive medicine and surgery; such as proper nourishment, immunization, and removal of tonsils and adenoids. In this connection I may appropriately state that I have never seen a death from diphtheria in any case in which the tonsils and adenoids had been removed, or in any case which had at sometime previously been actively immunized and later proven to be Schick negative.

The general death rate of the first group was 8.63%, but after excluding those cases which were hopelessly ill on admission and dying during the first twenty-four hours in the hospital, the death rate was only 5.53%. Of the second group, all of which had laryngeal involvement, there were three deaths, two of these died within ten minutes after admission and before I could get to them; intubation and artificial respiration failed to resuscitate them. The other case died from myocarditis after being in the hospital four days; his respiratory difficulty having been practically relieved. Therefore, in this group of sixteen laryngeal cases actually treated for the obstruction there was only one death and that from myocarditis. In the laryngeal cases of the first series the death rate of all cases admitted was approximately 25%, but after excluding those cases hopelessly ill on admission and dying within twenty-four hours, the rate was only 16.4%.

The management of diphtheria presents a three-fold problem; first, combatting the acute intoxication; and second, the relief, in about one-sixth of the cases, of the mechanical obstruction to the respiratory tract, whether it be pharyngeal, laryngeal, tracheal or bronchial. The third problem has to do with relieving the patient from infection and isolation after having recovered from the acute disease. Time does not permit details of the general treatment of diphtheria, so for the purpose of this paper I

will assume that the intoxication is adequately treated, and only the latter two problems remains for our consideration.

The equipment required for all that may be necessary in this type of work is as follows:

1. A double set of O'Dwyer intubation tubes. Two sets are necessary so that when a child is wearing a tube another clean one of the same size may be held in readiness to insert immediately should the child cough the one it is wearing.

2. A set of laryngoscopic and bronchoscopic instruments sufficiently complete to do diagnostic work, and to remove the various types of foreign bodies, especially the cast of diphtheritic pseudomembrane. My experience has been that many types of foreign bodies, particularly mucous plugs have been mistakenly diagnosed as laryngeal diphtheria, and sent in the hospital as such. When this happens the majority of these cases have to be cared for on the spot, and then passively immunized with diphtheria antitoxin if they were exposed to the disease.

3. A tracheotomy set; I prefer the set selected by Doctor Jackson and called the "Jackson Tracheotomy Set."

4. A complete set of instruments for doing ear, nose, and throat work which may become necessary during the course of the disease or for cleaning up foci of infections dangerous to others, so these patients may be discharged with a clean bill of health.

The personnel required should consist of both physicians and nurses specially trained for this type of work and capable of using all the instruments mentioned above, as well as having a general knowledge of the course of diphtheria; for often the general condition of the patient, and especially the heart condition, must be hastily estimated before making a decision pertaining to any surgical procedure.

In the selection of a place for carrying out this treatment I must say that I know of no surgical condition that requires hospital care any more than does this one. Laryngeal or other respiratory obstructive diphtheria is an emergency of the first order, and too often one resulting in a fatality when treated too late or improperly. Of course if a community hospital is not available the next best is to establish a fully equipped miniature hospital for the condition in the home. Fortunately, most wide-awake communities are seeing the need for a small hospital, or a special unit of a general hospital, equipped to care for these cases, and it is to be hoped that the time will soon arrive when every child stricken with this dreaded disease will have access to a hospital and every other facility which lends towards its recovery. At the Park View Hospital in Rocky Mount, we have two small rooms on the ground floor with a separate outside entrance set apart from the general hospital and specially equipped for handling these cases.

The most proximal type of obstruction to the respiratory tract encountered in diphtheria is that of the oro and hypo pharynx. It begins with

involvement of the tonsils, goes untreated for three or four days while the membrane is spreading over the fauces and pharynx. There rapidly appears sufficient cervical edema and swelling to cause complete obstruction of the lower pharynx, and the so-called "Bull Neck" case. A "Bull Neck" did not occur in any case in which the tonsils and adenoids had been previously removed. Approximately ten per cent of cases at the Philadelphia Hospital were of this type, but only a very small per cent of them became completely obstructed. It was very unusual for the larynx and lower respiratory tract to be involved at the same time in a case of this type, however, it did rarely occur as a mild extension in the larynx and trachea; but a case of complete obstruction of the pharynx and larynx at the same time was not seen. It is obvious that there is only one means of real relief for these cases and that is an orderly tracheotomy. I have performed several tracheotomies on cases of this kind, once while an assistant made an airway between his two fingers inserted through the pharyngeal obstruction to permit breathing until the tracheotomy tube was in place; also I have done them with an assistant holding a laryngoscope or bronchoscope through the pharynx for the same purpose. Most of these cases died of the acute toxemia. One case survived the acute toxemia, and the tube was removed and wound healed in ten days; then during the fifth week of convalescence he developed heart block, a condition in diphtheria which is 100% fatal. None of the cases of this type requiring a tracheotomy completely recovered.

The next type of obstruction dealt with was that of the larynx, trachea, and bronchi. After preliminary inspection of the mouth, throat, and nose routine inspection of the larynx was done by direct laryngoscopy on every case that had a croupy cough, and also on those with any degree of labored respiration. A Jackson Posterior Commissure Laryngoscope, usually a number twelve, but sometimes a number seventeen, was used for this purpose. In every case with diphtheritic involvement there was seen an inflamed and sometimes a swollen laryngeal mucosa unless it was covered by pseudo membrane and obstructed from view. Pseudo membrane was not always present in the pharynx, but it was usually seen at the laryngeal orifice overlying the aryteno-epiglottic folds and extending down in the larynx and over the vocal cords. This was removed by using a blunt tracheal or bronchial aspirating tube through the laryngoscope. Contrary to the popular idea, removal of this membrane did not leave a bleeding mucosa. Slight oozing sometimes occurred when membrane was peeled from the tonsils, but they are much more vascular than the larynx and trachea. The aspirating tube was then inserted gently down through the larynx into the trachea and also in the bronchi if necessary, and aspiration continued until no membrane was obtained. A bronchoscope should not be passed in a case of this kind; a blunt twenty to forty cm. aspirating tube used through a posterior commissure laryngoscope is much better because:

1. The bronchoscope is of much larger calibre than the aspirating tube and consequently there is more danger of traumatizing the inflamed laryngeal mucosa.

2. The usual post-bronchoscopic laryngeal edema would be a serious consequence in these cases, whereas, there is no such reaction from the use of the aspirating tube through the laryngoscope.

3. The pseudo membrane can be removed from the larynx, trachea and large bronchi just as well and possibly better with the blunt aspirating tube alone than with its use through a bronchoscope.

4. The use of the aspirating tube is much quicker and therefore greatly lessens the fatigue to the patient, this being a most important consideration.

The membrane was usually aspirated in the form of broken laryngeal, tracheal or bronchial casts, but many times I have aspirated in one piece a cast of the trachea with several divisions of the bronchial tree intact. Some of them were preserved and are now in the specimen cabinet at the Philadelphia Hospital for Contagious Diseases. Occasionally a case was seen with no membrane in the pharynx or larynx, but with almost a complete cast of the trachea and bronchi. In these cases there was no hoarseness nor croupy cough, but otherwise the picture of the case was the same as with laryngeal involvement.

After thoroughly aspirating the membrane from the larynx, trachea and bronchi approximately 95% of the cases (depending upon the stage of disease) would breathe easily, improve in color, take nourishment, and often would go to sleep for a good rest. However, after the membrane had been cleaned out of the larynx the remaining inflammation of the laryngeal mucosa would narrow its lumen, and sometimes almost obstructs a very small larynx. Rarely a case of this kind would require immediate intubation after aspirating out the membrane; but as a rule these cases were babies under two years of age, and were real emergency cases before aspiration was done.

Pseudo membrane may and often does reform in from six to twelve hours, during the first twenty-four to thirty-six hours after starting treatment, and in a sufficient amount to require reaspirating. I have had to repeat this procedure several times over periods of three or four days. If the lumen of the larynx can be kept open and the dyspnea relieved by this procedure, it should be done as often as is necessary, and thus eliminate the insertion of the O'Dwyer tube and its dangers. Although intubation is very necessary at times, and saves life in many cases, a resumé of the dangers and results is sufficient argument that it is an undesirable procedure. Its dangers are:

1. An intubated child is always an emergency, in that the tube may be coughed at any time and leave the larynx in spasmodic stenosis and requiring its immediate reinsertion in order to prevent sudden death from asphyxiation.

2. When intubation is done without first cleaning the membrane from the larynx the membrane may be pushed down in front of or in the tube and thus block the lumen of the tube. Also when the membrane has not been cleaned from the trachea and large bronchi before intubation, cast of it may break loose and be coughed against the distal end of the tube and block it. Either case is an emergency and requires immediate extubation, clearing the larynx and trachea, and possibly reintubation with a cleaned tube.

3. Intubation when done by the most skillful intubators sometimes traumatizes the inflamed laryngeal mucosa and it almost always happens when intubation is done by beginners. The traumatized area, depending somewhat upon its extent and the resistance of the patient, may heal primarily without infection; or it may become infected and form an ulcer. When once an ulcer forms in such a larynx it almost always becomes spasmodic when the tube is removed; and often to the extent of producing a complete stenosis and requiring immediate reintubation and subsequent treatment of a chronic tube case.

4. Even when a perfect intubation has been performed without trauma, and the tube left in for a few days, it always acts as a foreign body to the larynx and ulceration may form about it. This rarely happens but when it does we have a potential chronic tube case to deal with. And even after getting these chronic tube cases freed from the tube there is always a certain amount of cicatricial stenosis resulting, which time and nature may or may not completely erase.

5. Whenever intubation causes ulceration and secondary infection in the larynx it greatly increases the possibility and danger of secondary bronchitis and broncho-pneumonia.

Intubation should never be done until after laryngoscopy and aspiration; then, if it becomes necessary, the larynx and the trachea have been cleaned and are better prepared to receive and retain the tube. Used in this way intubation at last finds its proper place and relieves perfectly the condition it was conceived to relieve. Also, when used in this way fully 80% of the dangers from it are eliminated. The late Doctor S. S. Woody, head of the Philadelphia Hospital for Contagious Diseases for the past twenty-five years until his death one year ago, told me that since the introduction in 1924 of laryngoscopy and aspiration in this line of work, not only has the mortality been substantially reduced, but there has been a great reduction in the percentage of laryngeal cases intubated, in the number of chronic tube cases, and in number of cases requiring tracheotomy. Only in cases of dire emergency, when laryngoscopy and aspiration is not available, intubation may be done as a life saving procedure; but even then as soon as possible the tube should be removed, and the larynx and trachea freed of membrane. After doing this reinsertion of the tube will often be unnecessary.

Intubation may be performed by two different methods, the direct and the indirect. The direct method is simply inserting the tube into the larynx through a laryngoscope by the use of a straight obturator. The indirect is inserting the tube in the larynx by touch, that is by using the indirect obturator to place the tube to the larynx and then using the left fore-finger to guide it in the larynx. I have used both methods, but in treating the ordinary acute obstruction case the indirect method is by far the choice one, because in 98% of cases it is not possible to accurately determine the necessity for intubation after laryngoscopy and aspiration until after the laryngoscope is withdrawn and the child is at rest. Then if intubation is necessary it is much quicker and simpler to do it indirectly than to pass the laryngoscope again. An experienced intubator can do it just as efficiently with one method as with the other, therefore the simpler and quicker one should be chosen. Possibly the novice would cause less trauma with the direct method.

I use a No. 4 banjo wire securely attached in the hole in the shoulder of the tube, and after it was inserted into the larynx the wire was cut so as to leave the ends free in the roof of the mouth; thus making it impossible for the child to work the tube out with its tongue. Also, this makes it very easy to perform extubation quickly. Splints were put on the child's elbows and then it was impossible for it to take out the tube with its hands.

The tube was ordinarily left in the larynx five days, then removed and left out if possible. In selecting a day for extubation the weather conditions were considered, and if possible it was removed on a bright sunny morning. It has been proven by experience that children extubated on damp rainy days more often have to be reintubated.

There remains one type of diphtheria of the lower respiratory tract that is 100% fatal, nothing yet having been devised to relieve it; and it is doubtful if there ever will be. It is diphtheria of the lower alveoli of the lungs and is termed diphtheritic broncho-pneumonia. It is usually associated with tracheo-bronchial diphtheria but I have seen it occur independent of involvement of the larynx, the trachea, and upper bronchi. As soon as the membrane begins to soften and liquify the terminal bronchioles become obstructed with fluid and the child soon suffocates. The diagnosis of these cases was easily proven at autopsy by macroscopic, microscopic, and bacteriological examinations.

The relief of chronic tube cases has been a serious problem ever since the invention of the O'Dwyer tubes. However, it is not now even near the problem it was before laryngoscopy and aspiration was started. Before then there was a special building of twenty beds at the Philadelphia Hospital to care for these cases and tracheotomy cases resulting from them. But, with the introduction of laryngoscopy and aspiration there are scarcely any more obstinate chronic tube cases; and this building was necessarily converted to another purpose. It is safe to say that this pro-

cedure alone has eliminated the vast majority of these cases. The condition in them to be relieved was one of cicatricial stenosis, either of a very small portion of the larynx, or of the whole of it.

The method of relieving these cases was to first try insertion of a tube one or two sizes larger in diameter but cut in length to the size of the smaller tube. Usually the patient could retain this tube from two to four weeks without an elevation of temperature and then it could often be removed without producing spasmodic stenosis sufficient to require its reinsertion. Only hard rubber tubes were uses because they are much lighter and cause less tissue reaction. Whenever the tube could be kept out by this method for two days nature and normal use of the larynx would complete the recovery. Whenever this method failed to give results early, low tracheotomy was resorted to without further delay. Then the laryngeal tube was removed and the patient was soon made to breathe through the larynx by gradually plugging the tracheotomy tube. As soon as it was completely plugged for three or four days and the patient was doing well the tracheotomy tube was removed and the wound closed. Approximately forty such cases were treated in my series at the Philadelphia Hospital, and if my memory is correct only seven of them required tracheotomy. All of the cases of this type completely recovered and none were sent to the Jackson Clinic as had commonly been the case previously. The main points in treating these cases are careful daily observation and occasional laryngoscopic inspection so as to know the condition of the larynx and not let it get too badly damaged before doing a tracheotomy and removing the foreign body (laryngeal tube), and also giving the larynx a complete rest, and nature a chance to heal it.

Thirty years ago many tracheotomies were done to relieve respiratory obstruction in diphtheria, but different improvements in relieving this condition have been made until now it is very seldom that one is necessary. Only two conditions are remaining that necessitate a tracheotomy; they have been previously discussed and are first, pharyngeal obstruction caused by excessive cervical edema, and second, those few chronic tube cases that require it. It is not often done now in modern communities for the relief of acute laryngeal diphtheria; but is sometimes the safest procedure for a case that must remain at home or far out in the country, or away from one trained in laryngoscopy and aspiration, and intubation. An orderly low tracheotomy is much safer than intubation without preliminary laryngoscopy and aspiration, and far better and safer than leaving such an intubated case unprotected at home. Emergency tracheotomies in small children are considered very dangerous by all who have had any experience in doing them; and should be prevented if possible. They may be avoided in cases of laryngeal obstruction if the operator has any kind of laryngeal tube that may be temporarily inserted, and in cases of pharyngeal obstruction if the operator has a laryngoscope, bronchoscope, or any other similar tube that may be used to temporarily force an opening

through the pharynx until an orderly tracheotomy is done. In doing an orderly tracheotomy the child was placed on a table with the neck stretched over a sandbag. Infiltration anesthesia with ½% solution novocaine was used. A long skin incision was made in the mid-line from the superior border of the thyroid cartilage to the suprasternal notch and the tissues carefully dissected down to the trachea. All bleeding or oozing was stopped immediately as it occurred. The upper four rings of the trachea were exposed, and the second and third ones, and the fourth if necessary were opened. The first one was never cut because it is the only complete one; all the others being deficient of cartilage posteriorly. If the first ring is cut its ends may over-ride each other and greatly lessen the lumen of the trachea or even obstruct it. After the tracheotomy was finished the child was put to bed face downward with one shoulder elevated on a pillow, and with the foot of the bed elevated so that any secretions or oozing blood might have dependent drainage. When the tracheotomy wound was closed it was done gradually from within outward. Gauze was packed on each side of the trachea to push its severed rings in approximation and to cause them to heal first. Then the remainder of the wound was allowed to heal.

Lung abscess was a very infrequent sequel to diphtheria of the lower respiratory tract in my cases, only two cases being observed. One was a girl of ten years who had extensive diphtheria involvement of the throat and lower respiratory tract. She was laryngoscoped and aspirated several times before she remained free from pseudo membrane, all during the first four days in the hospital. Then during the third week of convalescence a small lung abscess was found in the lower right lung. It was treated by postural drainage and by bronchoscopic aspiration seven times. She soon cleared up and was discharged to the care of her family physician, since which I have not heard of her. The other one was a boy thirteen years old and had similar diphtheritic involvement. He also developed a right lower lobe abscess during the third week of convalescence, but cleared up after three bronchoscopic aspirations. Neither of these cases had been intubated. The diphtheria bacillus could not be recovered from the aspirated pus in either case; the staphlococcus in pure culture being the germ obtained. Possibly many other minute lung abscesses developed and had spontaneous recovery undiagnosed.

Middle ear abscess was a common disease occurring with diphtheria and especially with the laryngeal cases. It cannot be termed a complication because the diphtheria bacillus was never recovered from the first discharge obtained, but was very commonly found in a few days as a secondary infection. These ears were usually a very mild type and healed in a few days, but three of them required a simple mastoidectomy before recovery.

It is often the case after a patient is completely well of the acute disease, that diphtheria bacilli linger somewhere in the nose, throat,

sinuses, or ears. Although well themselves these cases are infectious to others, are a menace to society, and therefore have to be isolated until freed of the germs. Isolation is very good for the protection of us on the outside, but its hard on the one isolated, for in the past the period of isolation has varied from weeks to two years or more.

Many barrels of germicidal solutions have been dropped in ears and nostrils, and swabbed in throats; but it might almost as well have been poured in the sewer, for it only killed those germs on the surface of the tonsils and adenoids and never touched the main foci of infection, the crypts of the tonsils and inside the sinuses and ears.

In Philadelphia the law required for release from quarantine the obtaining of two successive negative cultures from both the nose and throat and also from any abnormal discharge. So once for experimental purposes I took a third culture on one hundred successive cases that had obtained the required two successive negatives for discharge and were legally out of quarantine. In sixty-three of them the culture was positive; therefore the logical conclusion would be that the law should also require removal or recovery of any apparent harbor of the bacillus.

The principle followed in relieving them was extirpation of the focus of infection when possible, and adequately opening for drainage those foci that could not be extirpated. It is not radical to say that the tonsils and adenoids should be removed routinely in every case after recovery from the acute disease; for even though no bacilli are found by culturing the nose and throat, they are usually present deep in the crypts of the tonsils and adenoids. Anyway the tonsils and adenoids have been affected beyond repair by the diphtheria bacillus together with the mixed infection which always accompanies it and should be routinely removed. I have removed hundreds of them on whom permission for operation could be obtained and I advised it on all the rest.

When positive cultures come from the nose the nasal mucosa should be kept reduced by a spray of 2% aqueous solution of ephedrine sulphate or hydrochloride so that free ventilation and drainage are not obstructed. Also the nostrils should be irrigated once or twice daily with a "Lore" nasal irrigator, using normal saline solution. If positive cultures still persist after a week or ten days of the above treatment it should be assumed that the foci of infection are in the accessory nasal sinuses. Inspection of the nasal passages and transillumination will usually indicate the affected sinus, but very often X-rays and even direct irrigations of the sinuses are necessary to make the diagnosis. Intranasal surgery necessary to permit drainage should be done. After all foci of infection are removed or drained it is well to use germicidal solutions in the nose and throat, and for direct irrigation of the sinuses. When running ears give positive culture for diphtheria bacilli it is always a secondary infection. The treatment is that ordinarily indicated in the absence of diphtheria bacilli. However, the assumption is made that no ear should be allowed to

run more than three to six weeks without surgical intervention. When possible only a simple mastoidectomy should be done, but in old running ear cases a radical mastoidectomy may be necessary.

It behooves all of us to advocate active immunization against diphtheria; and thereby prevent future possibility of such experiences as mine.

DISCUSSION

Dr. J. N. Robertson (Fayetteville): Mr. Chairman, after hearing this paper I am more convinced than ever that there is no routine method of treating diphtheria.

I think the main thing that we should have in view—and we all have—is to relieve the obstruction and get the child well. Of course, we all have to rely on the intubation tube.

After we intubate a case, if that case doesn't do well and we think that aspiration is indicated, I think that a tracheotomy is indicated.

If we have to remove a tube each time and aspirate through the larynx and replace that tube, we do two things: we unduly traumatize, and we use up a lot of the child's vitality, whereas if we do a tracheotomy we can more easily aspirate through that tracheotomy opening or even remove the tracheotomy tube, if necessary.

As I said, I think that all cases require careful study and sometimes we can't have any definite rules in a case.

Dr. Bailey: I have very little else to say. I failed to read quite all of the paper. I might say that these cases are really always hospital cases and it is almost impossible to adequately treat them any place else.

There is no more dire emergency that occurs in any surgical condition than in these cases and it behooves all of us in our communities, if there is no special contagious hospital, to try to have the hospital that we are dealing with set up some special arrangement whereby there may be isolation rooms for the purpose of treating these cases. Many lives may be saved by such an arrangement.

Chairman Reaves: I am going to call on Dr. Hicks to introduce our next speaker.

Dr. V. M. Hicks (Raleigh): Gentlemen, very informally, I wish to say that I take great pleasure in presenting our next speaker who will address us on a subject that is becoming increasingly important not only in our particular specialty but throughout the practice of medicine and surgery in general. I think that our speaker is unusually well qualified to talk to us on this subject because of his large experience and practice and I think that we will all be very happy to hear from him because Dr. Key is a personal friend to a large number of the members of this Section.

So, without further remarks, I present Dr. Ben Witt Key, of New York. (Applause)

Dr. Ben Witt Key (New York): Mr. Chairman, Members of the Section: I am greatly pleased to be your guest here today. I feel very

much at home, perhaps because of your hospitality, which is well-known, but perhaps also because I have been here before. It was in 1915 that I was the guest in Raleigh, through the courtesy of Dr. John Wright, at one of your medical meetings, and that was a very memorable occasion for me. I remember Dr. Lewis, Dr. Battle, and Dr. Anderson, and many others that you know who so faithfully, so conscientiously labored here for the good of this community, and who have passed on now, to leave their teachings and their faithful work as an inspiration to those who now are responsible for it. In this measure these old-timers are with us today and very much alive, it seems to me.

ALLERGIC PHENOMENA IN OPHTHALMOLOGY

By Dr. Ben Witt Key
100 W. 59th Street, New York City

In this presentation of the ophthalmic manifestations of allergic reactions, the attempt has been made to sift the data recently published on this subject, and with that of my own clinical experience, to bring to your attention the many valuable relationships that have been established, and which have a scientific and important clinical bearing upon the practice of ophthalmology today. I shall not consume your time or confuse your understanding of present-day standards of allergic reactions by a long discourse on this subject, which every one knows is really "in the making," so to speak, and about which specialists in this field of medicine are very much at variance both as to the theory and in the practice of it.

But it is obviously necessary to present to you, as briefly and as clearly as I may, some essential facts and factors in allergy, as a background upon which we may focus the clinical pictures of ophthalmic disease, so-called, as we see them in our daily routine of practice. We may recognize and classify them as ophthalmic diseases, but in reality they are manifestations of an allergic reaction in the body chemistry.

Allergy, other energy, is the term used by Von Pirquet to describe a state of altered reactivity of the tissues. In 1902 Charles Richet coined the word anaphylaxis, by which he meant the direct antithesis of prophylaxis, meaning protection. In his experiments Richet found that guinea pigs inoculated with a foreign protein, either died or had severe reactions if reinoculated with the same protein, provided that a suitable period be allowed to elapse between the first and second injection. The term, allergy, has also been used to denote the natural hypersensitiveness of an individual as contrasted with anaphylaxis, which is hypersensitiveness artificially induced by inoculation. True allergy then is a form of hypersensitiveness, and hypersensitiveness is defined by Coca as a sensitiveness in man and lower animals that is mediated by a special mechanism. This means that the exciting agent, usually termed the antigen, is not by itself irritating, but becomes so only in conjunction with another substance,

formed by the animal body, to which it is specifically related, and which we call antibody.

Although there is much difference of opinion and much justified argument regarding the classification of the various forms of hypersensitiveness, the most comprehensive and usually accepted one is that which places these conditions into the following groups: 1. Dermatitis venenata; 2. Serum disease; 3. Anaphylaxis; 4. Hypersensitiveness of infection, and 5. Allergy or atopy (Coca). A detailed discussion of these groups is inappropriate and unnecessary here, but this classification serves to show that the term, allergy, is a rather loose one which permits the inclusion of many conditions little or not at all related and is, on that account, objectionable. But it has come into such general use that it will remain.

The allergic individual is born with the "susceptibility," but may not show clinical evidence of it until later years and sometimes only after some infection or unusual exposure to the etiologic agent. That non-allergic individuals are not easily made allergic is illustrated by the fact that while many men are now engaged in collecting pollen and, in the course of their work, are exposed to large amounts of it, none of them has ever been reported to have developed symptoms of allergy.

Whether a particular individual will develop asthma, hay-fever or urticaria seems to depend upon some unknown factor in the tissues themselves. Two persons may be sensitive to ragweed pollen; one has hay-fever without asthma, and the other may have asthma without hay-fever. Of two hay-fever patients, one may suffer most with the nasal symptoms while the other complains chiefly of the eyes. Apparently some factor in the tissues is as important in the localization of effect as is the antibody in the blood.

As for the treatment of allergic conditions, the fact remains that, while we are able to secure very satisfactory results by specific treatment, we do not know exactly what we are doing. Injections of pollen into a pollen-sensitive person may—first, produce an immunity; second, they may desensitize the individual, or third, they may induce a tolerance. A complete elucidation of these possibilities, together with the etiologic relationship, and the fundamental mechanism in explanation of them, would quite fill a two volume treatise on this subject.

But for our purposes, it is well known that the treatment consists of injections of the substance to which the patient is sensitive. Since it is the same substance as that causing clinical allergy, its use is always accompanied by the possibility of a reaction manifested by a violent outbreak of allergic symptoms. A patient who has hay-fever but has never been asthmatic, may have a severe paroxyn of asthma following an overdose of the etiologic agent of the hay-fever. An angio-neurotic edema is commonly seen as a part of these reactions, a condition which the patient may not have experienced previously. This supports the conclusion that these

conditions are intimately related, have the same etiology and the same fundamental mechanism.

These varying concepts may be true, but they are perhaps somewhat confusing to us who deal so constantly with such an exacting branch of medical science as ophthalmology. But let us consider the ocular relationship to these varying allergic principles. It is important for us to recognize how often and how sensitively the eye gives expression to allergic phenomena. Furthermore, it should be recognized that the eye is particularly adapted for this study, not only because of its highly specialized structure, but because of its completeness as a separate but intimately related biochemic body in itself. The eye is made up of all the primary tissues of the human body except bone, and under certain conditions calcareous material and even bony structure are developed within the globe. It possesses a connective tissue coat, a vascular tunic, voluntary and involuntary muscle, lymph spaces and modified lymph structures, amazing pigment deposits and linings, an ever-moving pigmented sphincter curtain of vascular stroma and muscle fibers, a nervous mechanism incomparably delicate and complex, the whole protected by mucous membrane anteriorly. Because of these facts, well known to the ophthalmologist, and also because minute ocular changes are so sensitively recognized by the patient and often can be detected early by the oculist, but especially because the greater portion of the eye is composed of modified lymph substance plus ectodermic structure, the eye-ball seems to offer itself as a veritable culture tube for biochemical expressions of the body fluids and therefore reacts sensitively to allergic phenomena.

One word as to the ectodermic character of the eye-ball, because it is well known that in tissue from this embryonic origin especially do allergic reactions express themselves clinically. The eye-ball is for the most part an invagination of ectoderm. In structure then, all is ectodermic except corneal substance, uvea and the optic nerve. This may seem to be a very simple premise to assume in this connection, but I shall attempt to emphasize its importance in the discussion which follows.

From the viewpoint of the ophthalmologist, we have to deal with the following conditions, truly allergic or possibly allergic but not yet accepted as such.

1. Ocular manifestations of the acute exanthemata.
2. Lid conditions
   - a. Angioneurotic œdmea.
   - b. Eczema of lids.
   - c. Blepharitis.
3. Conjunctival Conditions
   - a. Catarrhal conjunctivitis.
   - b. Metastatic gonorrheal conjunctivitis.
   - c. Phlyctenular.
   - d. Hay-fever.
   - e. Vernal catarrh.

4. Episcleritis and scleritis.
5. The lens. Phacoanaphylactica.
6. Sympathetic ophthalmia.
7. Allergic forms of tuberculosis. Tuberculin.
8. Allergic forms of syphilis.

Although it is not assumed that this outline includes all the forms of allergic phenomena in ophthalmology, yet it does represent the more usually accepted and those under investigation and study at this time.

The first suggested here, the acute exanthemata, are not generally regarded as allergic. But have you not thought of these exanthematous diseases (measles, scarlet fever, smallpox, and chicken-pox) as expressing themselves in the ectoderm through a protein influence—the toxic agent being a bacterial protein or colloid, the product of bacterial activity or cellular change—so that the skin eruption, and ocular lesions are merely an anaphylactic or allergic reaction to this protein sensitization agent of the disease? Note that the ectodermic structures are those visibly affected, and that the vegetative nervous system may play the rôle of transmitter to and from the site of the reaction. Does the high temperature then complete the picture of anaphylactic shock? The ocular manifestations—the ectodermic portions of the eye being primarily affected—may be important subjective and objective phenomena of the same reaction. This of course may be mere theory, but, it seems to be a reasonable assumption, and if it proves to be true would simplify our conception of the cause and effect in this group of cases and would clear away much uncertainty that exists at the present time.

It is fitting that we recall that the ocular manifestations of the exanthemata are limited to the lids, conjunctiva, and episclera, and although corneal substance, the uvea and the nerve may be involved, these are almost invariably secondary or the expression of an intercurrent disease or complication—such as pneumonia, nephritis, meningitis, endocarditis, adenitis, etc. You see at once the importance of this correlated study. The involvement of the corneal propria, uvea, or nerve at once suggests the approach or presence of a complication perhaps of serious consequence ad visam or even ad vitam.

In these diseases, rarely is corneal substance affected, even in smallpox, and when this does occur, it is usually due to some intercurrent or related cause, as in phlyctenule, or abrasion, then infection and pustule follows. This is true also of the uvea and optic nerve which are affected very rarely if at all by the disease itself.

Since the blepharitis and conjunctivitis of the acute exanthemata are self limiting as a rule, the mildest form of treatment is always the best. We have it from the highest authorities that this form of acute blepharo-conjunctivitis is often made chronic by the zealous over-treatment of these cases with irritating lotions and vaselines or salves. A gentle eye bath of

warm boric acid solution made up with normal salt solution—warm, not hot or cold—is, I believe, the best form of treatment. The old theory of the darkened room in these cases has of course been long exploded; it is desirable nevertheless to keep the patient in subdued light as a matter of comfort and for other obvious reasons. It is important, however, to keep in mind the necessity for limiting excessive reading or writing or use of the eyes for near objects during and immediately following the attack. This is emphasized by the occurrence frequently of the onset of myopia during this brief period of general debilitation. Also convergent strabismus for the same reason occurs in suitable cases of high hypermetropia.

Angioneurotic edema affecting the lids and brow is universally accepted as an allergic reaction. Its treatment also is well known, but at times the specific exciting factor, such as foods and contact materials, responsible for it may be difficult to discover. A careful history, close observation, and recourse to sensitization tests should disclose it.

Eczematous disease of the lids is also a well known allergic reaction to food proteins, especially shell-fish, and other fish foods, certain condiments, teas, strawberries, etc., although some may be due to carbohydrate or fat intolerance.

Certain forms of congestive and squamous blepharitis, and many forms of catarrhal conjunctivitis have been classed as allergic in character. Where the error of refraction has been corrected, and the usual habits of cleanliness and protection from local irritation have been carried out, and in the absence of nasal catarrh, these cases have been entirely relieved by strict dietary regulation.

A form of conjunctivitis that is in all probability an allergic sensitization problem is that of the so-called metastatic gonorrheal conjunctivitis. This is regarded as a definite clinical entity usually associated with an acute exacerbation of a chronic prostatitis. The symptoms and course are well known, but its chronicity is dependent almost entirely upon the vigorous treatment administered by the urologist. This condition often may test one's diagnostic acumen, but its recognition and co-operative treatment is most gratifying to the patient.

Phlyctenular conjunctivitis is another form of allergic reaction undoubtedly due to a toxic agent, either a bacterial protein or colloid, the product of bacterial activity or cellular change in the body chemistry. These of course are vesicular in character but may develop, with the advent of infection, into destructive pustules of the cornea. Obviously the treatment must always include a laboratory investigation and a thorough physical examination in co-operation with the family physician. It is well known that these cases are frequently associated with dietary conditions, especially in children, when a food allergy may be responsible, and it may become necessary to resort to sensitization tests.

As for the conjunctivitis so universally known to be associated with the different forms of hay-fever and sometimes with asthmatic reactions, suffice it to say that these allergic reactions have received so much attention at the hands of specialists in this field, that any further suggestions from me would seem inappropriate here. Diluted Estivin solution, and other preparations in the nature of astringents or mild local anesthetics are administered as paliative measures only. Climatic changes and systematic treatment by injections in the hands of an expert are advocated.

Vernal catarrh has long been regarded as the ocular disease preeminently allergic. Its association with eosinophilic changes lends further evidence of this. And yet no definite etiologic protein agent or pollen or toxic agent or bacteria or other agent, either by inhalation or by contact materials or by food ingestion or by other chemical reaction, has been discovered which has consistently proven its allergic or other etiologic character. Its clinical aspects and its microscopic pathology suggest many theoretical pathways that may lead to the discovery of its etiology. It is well known that radium, properly applied, has proved to be the only curative agent. In many cases, however, radium is not curative. On the other hand it has been shown to be very destructive to lid substance in some cases, when perhaps improperly employed, and may cause much more harm than good. Here still awaits a field of research for aspiring ophthalmologists and specialists in allergy.

Episcleritis and scleritis may also be classified as allergic reactions to a bacterial protein or to a cellular change associated with infection, and in some cases, no doubt, to certain food intolerance. The clinical picture is frequently indicative of its character. Episcleritis is probably allergic in most instances. Scleritis may be allergic, or may be directly infectious. The causes of both conditions in order of frequency have been demonstrated clinically and in a complete statistical study.

Sympathetic ophthalmia at this time cannot be regarded as an allergic reaction per se, but there is much evidence to show that this uveal disease, which has been shown to be always bilateral (Fuchs), may depend for its peculiarly chronic but fulminating character upon the allergic reaction in the sympathizing eye to pigment absorption in the injured eye. Elschnig, Allen Woods, and others have shown the effect of uveal pigment absorption as being capable of causing a hypersensitiveness in both eyes to the point perhaps of anaphylactic intoxication (of Elschnig). In view of recent reports since 1925, many of these cases which have proved to be related to foci of infection and which have been completely relieved by the removal of them, it would appear that here again the allergic principle of a toxic agent in the blood, in keeping with the fundamental mechanism of allergic reactions, may explain the etiologic factors responsible for sympathetic ophthalmia. It seems reasonable therefore to assume that sympathetic ophthalmia is a specific type of uveitis, due to a focus of infection (or systemic disease), either exogenous or endogenous, just as

other types of uveitis have their origin. But the clinical picture and the destructive nature of the sympathetic type are due to the pigment hypersensitiveness and the resulting hypersusceptibility of both eyes, incident to uveal destructive changes from injury to the globe.

The therapeutic indication is clearly that of a thorough search for and elimination of the focus of infection. Obviously this indication should prove to be of great importance in cases of threatening sympathetic uveitis, where the patient refuses enucleation, or where the injured eye itself may of necessity survive.

The rôle of tuberculin in the diagnosis and treatment of tuberculous ocular lesions is a problem in allergy, which is becoming more generally recognized even by the heretofore sceptical and justly critical members of the medical profession. Tuberculin in ophthalmology has seemed to survive in spite of all criticism by so large a majority in other specialties of medicine. This is apparently due to the success attained by its use, but also no doubt by the fact that ocular tuberculous processes are frequently not truly bacterial in nature but are allergic reactions to the toxins of the tubercle bacillus, and which therefore respond to tuberculin treatment in a manner not commonly observed in other parts of the body. Here again one recalls that the eye-ball is for the most part ectodermic and perhaps therefore gives expression readily to allergic phases of the disease in the same manner that serious pleurisy and skin tuberculids may be expressions of it and in which no tubercle or bacteria can be demonstrated.

Eggston, in his excellent paper on this subject, has drawn the following conclusions, which seem very reasonable indeed. "The ocular lesions frequently diagnosed as tuberculosis in a patient with positive reactions to tuberculin are really not due to infection by tubercle bacilli with the formation of a tubercle, but are of an allergic nature, if they are in any way related to tuberculosis. Actual tuberculous infection of the eye is relatively rare. Injections of tuberculin are of value in the allergic cases if given properly in order to desensitize the patient, but of questionable value in active tuberculous ones. Tuberculin is the foreign protein of choice if the cellular metabolic mechanism of the tissue is to be excited, as a greater response occurs to a protein if there is cellular sensitization."

As to allergy and immunity in syphilis, we are constantly confronted today by reports of their influence on the nature of syphilitic ocular lesions. Although it is believed that allergy has an important bearing upon these lesions, experimental results have not coincided with the clinical evidence. The Wassermann reaction is a valuable diagnostic test, but it does not prove that antibodies are present in the blood stream. No antigen has been prepared which can be relied upon to test the cutaneous hypersensitiveness of the disease. The character of the disease and the inability to make satisfactory tests for allergic response leaves one very uncertain as to the true relationship of ocular lesions.

On the other hand, syphilitic iritis, keratitis and uveitis, are observed in the later stages of the disease and in those who, from the character of other general lesions, are believed to be allergic to syphilitic virus. The inflammatory character of these lesions which occur in cases hypersensitive to syphilitic virus, also indicates that they may be allergic manifestations. Although treponemes have been found in the cornea of interstitial keratitis experimentally produced, it has seldom been demonstrated in the cornea of the human. The effect of arsphenamine in cases of interstitial keratitis argues in favor of the allergic nature of the disease, because if due to invasion by the treponemes why is there little or no response to the injection as almost invariably occurs in other syphilitic lesions?

At the present time, experimental evidence does not coincide with the clinical observations of human syphilis, as to the orderly sequence of syphilitic lesions and the protection of the eye by early involvement of other tissues.

This brings us to the subject of foreign protein therapy, in which I have been interested for many years. While the evidence in favor of its definite curative properties is convincing,—tuberculin treatment is an example,—protein therapy seems to suffer most through its popularity, since no doubt too much is claimed for it. Authentic data are lacking to explain satisfactorily the complete mechanism of the protein reaction and the local effects now constantly observed. However, innumerable clinical and experimental reports of results from the injection of antidiphtheritic serum, milk, typhoid vaccine, tuberculin, etc., have stimulated the search for the most highly potent non-specific protein (vegetable, animal, bacterial), and the most effective method of administering it. But biologic specificity depends on the clinical individuality of proteins, and biologic relationship is equally associated with the presence of chemically similar proteins. And yet the impressive results of this therapy have been the attraction in this problem rather than the research proof in explanation of them.

At the present time antidiphtheritic serum is believed to be the most potent and the most dependable of the foreign proteins now available in this therapy. Three thousand units (about 4 cc. depending on the concentration) of antidiphtheritic serum by intramuscular injection, as the initial dose in adults (about 150 lbs. in weight), should yield a reaction of therapeutic value. This is followed in 48 hours by 2,000 units, and this may be repeated every 48 hours for several doses as the case may indicate.

Its value and preference over other proteins may be explained by the systemic response to the exciting agent. The crux of the situation seems to be this—that the foreign protein effect on disease is dependent for its therapeutic value on the scientific principle, well known to bacteriologists, that the effect may be diphasic. The first phase is one of stimulation and increased cellular sensitization. The second phase (which occurs when the reaction is excessive (toxic) to the point of anaphylaxis) is that of

depression (shock) and so lowered resistance. Therefore, that non-specific (or even specific) protein which causes only the first phase (slight rise in temperature, etc.) is the protein in suitable dosage which should yield the maximum therapeutic effect. Milk and other forms of protein that are unreliable as to dosage must be regarded as uncertain in their therapeutic reaction—but nevertheless are effective when given in proper dosage and in suitable cases. For this reason particularly, one must accept anti-diphtheritic serum as the most dependable and the most effective. It is easily and quickly obtained; it is sterile and ready for administration; its dosage is more certain than other protein preparations; it is harmless when moderate doses are given and rarely produces anaphylactic symptoms, (the human organism tolerating very large doses, and which are entirely unnecessary in order to secure the therapeutic protein reaction); it is highly concentrated and is capable of high stimulative and reactive properties; and finally, its uncertain but possible para-specific influence which it may exert—leucocytic, enzymic, and in the production of antibodies.

In cases where the history may indicate the possibility of the patient being hypersensitive to horse-serum, this may be determined by testing before the injection is given. The ophthalmic method of testing is now accepted as being superior to the intradermal or scratch method, particularly so in children. The method consists of the instillation of gtts i. of sterile horse-serum diluted 1 to 10, or 1 to 20. The conjunctival reaction expresses the effect.

The indications for this therapy have been greatly exaggerated, and justly challenged, so that the writer believes it necessary to again enumerate them. It is of therapeutic value in cases of pustule of the cornea, ulcus serpens and hypopyon keratitis, infection after penetration, idiopathic iritis and iridocyclitis, certain cases of keratomalacia and sympathetic ophthalmia, and for prophylactic purposes in certain cases.

In conclusion, may I emphasize that allergy so pervades all the fields of medicine today, that it behooves us to know its principles and fundamental mechanisms as best we may, and to recognize and study allergic reactions in our daily routine. The unfolding of biochemical truths in medicine, as they may relate to the eye and perhaps may even be added to through research on the eye, is a fascinating study in process of achievement, which most of us anticipate and trust we may live to realize.

Chairman Reaves: Dr. Key, on behalf of the Section I want to thank you for coming to us and bringing us this very important study.

Our next paper is "Sinus Infections with Some Hazards in Operative Treatment," by Dr. A. C. McCall, of Asheville. (Applause)

SINUSITIS, AND SOME OF THE HAZARDS IN TREATMENT

By Alvin Clay McCall, M.D., Asheville, N. C.

In dealing with this subject, I fully realize what you suspect, "all is not well in sinus diseases."

Practically every medical journal you read has something about sinus diseases. Writers of more or less prominence, corralled from all parts of the country, have written articles of great length.

We note two extremes in medical literature—a voluminous amount or a paucity of material in both cases. "Similie is" lack of knowledge and a panacea or well recognized treatment by which a cure is certain. It is doubtful if we can truthfully say there is no sinus infection. Neither can we say sinus infection is cured regardless of inspection, transillumination, X-ray, irrigation, or what the patient may say.

A review of a few points in anatomy: Skulls vary in size and form; micro-cephalic, with capacity of 1350 cc., to mega-cephalic, 1450 cc.; supra orbital arches very variable, more prominent in the male than in the female. In races less civilized, forehead recedes backwards approaching monkey skull. Frontal eminences are frequently asymetrical, beneath are noted the superciliary ridges which roughly indicate the frontal sinuses.

Zygomatic arches are very important, prominent cheeks or the reverse. In the degenerated type, the negro, the malar bones project forward and not outward, and finally the high-arched palate of the imbecile; skulls of syphilis and rickets.

To simplify classification, we will divide the sinuses into two groups. (a) Those emptying into the middle meatus of the nose, frontal, antra, anterior and middle ethmoids. (b) Those emptying into olfactory fissure, post ethmoid and sphenoid cells. For practical purposes the middle turbinate is considered with the sinuses, as it is in reality an overfolding of the ethmoid cells. In 1928, a series of several hundred sinus cases were reported from the Mayo Clinic[1] in which sinus infection as a foci of general infection was discounted, and only occurred in a very small number of cases, which was explained by the fact that the lining mucous membrane, which is squamous cell type with very few glands and no definite lymphatic glands to promote drainage into the general circulation. This view has not been borne out by other well known clinicians. The facts in the latter school have been my experience. I have seen some distressing cases of chorioditis, nephritis, etc., where no other source of infection could be detected other than the sinuses. Arygall and Lockwood[2] say that 70% of all sinus infection is maxillary and that it is of equal importance as focii to the teeth and tonsils. J. D. Williams.[3]

I shall not dwell on the causes and symptoms of sinus diseases except, to say in passing, that general colds, influenza, teeth and general constitutional disturbances are causative agents. The characteristic symptoms of sinus infection in the acute cases, as excruciating pain, which is rather

characteristic of the paroxymal attacks at certain hours; high temperature and nasal secretions, with a more or less fetid odor in chronic cases. The detecting of characteristic pus, supposed by some to indicate as to whether it is caused by teeth, colds, influenza, etc., seems to me to be ultra technical; I, at least, cannot tell by the odor whence the origin. In frontal sinus infection there is always involvement of the anterior ethmoid and usually the posterior ethmoid. The middle turbinate is always infected in sinus infection and finally the antrii. Hence the pan sinus nature that often ensues. Lee M. Hurd of New York.[4] A persistent headache for which a child wears glasses without relief is the characteristic headache of a chronic sinus condition. Walter Howarts[5] McTierman of New York.

McGivern[6] believes that tracheitis, bronchitis, etc., is not due to primary irritation at the local site of the symptoms, but is due to some nasal or sinus origin. Refined X-ray technique in making films with lipiodol or other opaque substances to demonstrate thickened mucous membrane, polypoid conditions, cysts, deflections, is of very little advantage and often misleading, giving false comfort. Stereoscopic films will certainly clarify the antrii and is of the greatest aid in diagnosing the other sinuses.

Painful conditions in and about the ear in which the ear is normal is caused by sphenoid sinus infection, was probably first described by J. H. Bryan[7] and St. Clair Thompson.

It is necessary to pause and review the anatomy for an explanation. The nose and naso pharynx are richly supplied with sympathetic nerves. Two important ganglion serve to transmit impressions. The spheno-palatine ganglion receives one of its branches the vidian, which is made up of branches of the superficial and deep petrosal nerves; as the vidian nerve passes through the vidian canal and gives off a branch to the Otic ganglion, which lies on a plane below and posterior to the sphenoid sinus. This Otic ganglion as it lies just below the foramen ovale gives branches to the mouth of the eustachian tubes and ausculates together with the corda-tympani.

Ear ache from the irritation in the course of the dental nerves as dentition, and caries, has been known for a long time, but no report or rather I have not had opportunity to see one, has been reported from an infection in the sphenoid cells, before Thompson and Bryan. Trigeminal neuralgia is frequently the nerve involved in tic-doloreux, and is confined principally to supra and infra orbital region. Polypoid cases are probably all allergy. Lee M. Hurd[8] The treatment of which is far from satisfactory. Surgery is contra indicated in acute sinus as it opens up new avenues, breaks down nature's attempt to wall off the invading process. E. R. Bray[9], C. S. McGouvern[10] decries irrigating the sinus through their normal openings. The openings are too small to properly irrigate. If you can get through the opening, which is very doubtful, it is useless to irrigate as the sinus will

drain itself, as is the case of antrii irrigating through the inferior meatus using a small needle.

Today the pendulum is swinging back to conservatism. Chief causes of failure in sinus surgery is destruction of function, largely due to faulty technique. Hence the term so often heard among the laity, "Once a sinus, always a sinus." Perry G. Goldsmith of Toronto,[11] contends that acute frontal sinus usually gets well itself if let alone; perhaps slight shrinkage of the mucous membrane will facilitate the drainage, plus of course measures to relieve the excruciating pain. The fronto nasal duct is a small tortuous irregular canal surrounded by ethmoid cells, and can be probed only in a small number of cases without undue traumatism, and then very insufficiently done. Likewise, failure to find the opening into the duct, beneath the middle turbinate, is a common occurrence.

In the Mosher method of first breaking into the Aggar Nassi cells and thence on into the frontal it is possible to irrigate a few, but, the hazard is removal of mucosa, exposure of bone, and setting up osteo myelitis, failure to recognize infection in large Chisti Galli cells. Infection in the opposite frontal and of course failure of the sinuses to clear up.

Sphenoid: No irrigation is feasible. We are compelled to confine ourselves to conservative treatment. Pre-operative work in the septum and the removal of the post ethmoidal wedge is necessary before instrumental interference can be carried out. The mucosa cannot be removed by instrumental means, due to thinness of wall separating from important structures; remember the vessels in the sub mucosa communicate freely with those in the optic foramen, and in the lateral wall may communicate with the cavernous sinus. Also, the veins communicate through to the Sella tersica. Some sphenoid sinuses are very irregular, have sulci which pass outward over the lesser and greater wings.

Antrii: In many cases we fail to recognize the ethmoid disease present. Failure to use the proper intra nasal procedure after careful conservative examination, followed by irrigation beneath the inferior turbinate rather than use the radical canine fossa route; failure to remove the septum, failure in the complete removal of all the mucosa, and make the nasal opening on a level with the floor of the nose. Of course proper recognition should be given allergy, syphillis, nephritis.

Ethmoid: Happy is the surgeon who thinks he has solved the ethmoid problem, provided his patients agree with him. It is the area that should be approached with most misgiving. Owing to the unusual situation, there is no uniform anatomical formation. It is in the nose, yet partially surrounded by remaining air cells. P. G. Goldsmith[12] Inflammation with discharge gives the surgeon cause for worry and oftentimes leads him into difficulties in which his surgical judgment is put to the severest test. Its mazes are intricate and far-reaching. Accurate localization of infection will often tax the diagnostic acumen of the most experienced rhinologist and a knowledge of the risks should steady the hand of the boldest

operator. He who attacks ethmoid inflammation without this knowledge, must surely hold lightly the safety and sanctity of human life. Persistence of discharge following operation in ethmoid cells is the commonest symptom of the failures to cure sinus diseases.

I shall only deal in a general way. "Skillern" speaks highly of argyrol packs combined with glycerine applied hot, acting as hygroscopic and increasing areation. Personally, I have had little improvement from this, but use instead adrenalin and cocaine shrinkage, then ichthyol, etc.

Persistence in suppuration after operation, of course, is due to not having provided permanent free drainage.

"Mosher" has shown us how to get into the ethmoid but it remains for someone else to show how to complete the work after we get there. Simple breaking into cells and then removing part of the middle turbinate may suffice to give free drainage and ventilation in a few cases. Avoid the cuneform area.

The ease with which infection can reach the meninges along the nerve sheath, is one of the outstanding contributions in nasal sinus pathology of our time, which has been so ably described by Logan Turner.

Removal of the whole middle turbinate and all ethmoid cells one can reach, with one fell swoop, after the manner of Sluder and Ballenger, is very radical, exceedingly bold and not without risk to the patient. I do not use it. It is impossible to remove all cells by intra nasal route. Many times the cells run out over the orbit and it is impossible to approach, except by external route, which of course is through the eyebrow region.

I think it is important to ease up on the radical system of opening into the cells. Perhaps several operations, separated by weeks, with full cooperation of the patient, and then if he is not relieved resort to the external route.

Hazards: Leaking cerebral spinal fluid, meningitis.

E. E. Muecke, London, said the more he operated the more conservative he became. He is utterly opposed to removal of the middle turbinate, does not irrigate any sinuses, and often sinuses clear up. He has abandoned the intra nasal route of the antrium, leaves the sphenoid alone, only straightening the septum.

Dr. St. Clair Thompson said when examining nasal infections and operative treatments, that we should be tender of the reputations of our colleagues, who operated upon the case. Contrary to Muecke, he considers operating upon the sphenoid a most satisfactory procedure.

REPORT OF CASES

Jesse Chandley, age 42, male, employee of the Southern Railway; admitted to hospital October 25, 1932. History: developed severe head cold three weeks previous, followed by pain in the head and continued headache, swelling of the forehead and around the right eye, a week

previous to entering the hospital. During the latter period the pain was excruciating.

Examination: Family and past history negative. Patient is a robust male, suffering intense pain. There is swelling over the forehead, especially the right frontal; edema in and around the eye; muco purulent discharge from the nose, more marked on the right, turbinates swollen; teeth —many surrounded with pockets of pyorrhea; tonsils hypertrophied and infectious; ear negative; sinuses—cloudiness of both frontals; X-ray examination shows sinusitis, both frontals and left antrum; leukocyte count 20,000; differential count shows normal relations; urine—albumin and few pus cells; vision normal, slight ex-ophthalmia. Otherwise examination negative; temperature 101; pulse slightly accelerated.

Owing to the acute condition it was decided to delay operative interference for a few days until symptoms became more localized, fearing, of course, meningitis. Operation done October 28th. Modified Killian method, right side. The external frontal plate was necrotic and approximately one third its entire area removed, extending over on the left side of the middle line; evacuated a fetid purulent material exposing an enormously large sinus. The posterior plate was necrosed over an area about the size of a fifty cent piece, which of course left the dura exposed. Wound closed with free drainage; opening made in the left antrium. Patient responded rapidly, and was so insistent upon leaving the hospital that he was discharged on November 1st, wound looking entirely satisfactory. Diplopia present. The operative wound healed very readily. Of course free discharge from the nose and in the course of ten or twelve days the wound had practically healed, so much so that he returned to work. About the 16th of November the diplopia had practically disappeared, but a small growth was noted at the root of the nose, which was very tender. This grew rapidly, and was so tender as to suspect a pus pocket; hypodermic needle failed to show any pus. X-ray examination reported osteomyelitis of the left side of the frontal region and left antrium. The entire operative field of previous operation instead of being sunken, was bulging. Second operation done on November 20th, at which time a granular mass had filled the entire operative field, naso pharynx and left antrium. This mass shelled out. Tissue saved for pathological report. Wound closed with free drainage. Pathological examination showed carcinoma. Patient began on X-ray treatment January 3, 10, 20, 21, 23, 24, Feb. 8, March 10. Patient went to Johns Hopkins January 7, and was seen by Dr. Crowe, who concurred in the diagnosis of carcinoma.

After the third radiation all evidence of the tumor had practically disappeared from the antrium and forehead. After the 4th radiation we could not find any evidence of the tumor. Patient insisted upon going to work. Early in March a reoccurrence beginning at the root of the nose, which has steadily increased until the present time. Later radiations do not seem to influence the progress. Patient worked during the last week

in March but now is suffering intense pain, has double vision and ex-ophthalmia. This patient is doomed; he is gradually dying under our direct supervision. I know of nothing further that can be done, except to administer freely God's own medicine, "morphia."

Second Case: Mrs. James M. Bryson, white, age 36, married. Entered hospital March 16, 1933. Family history and past history negative in regard to her present condition.

History: Developed a cold and influenza about three weeks previous followed by pain over the eyes and free nasal discharge. Excruciating pain, for the past week, over the right eye. Entered hospital with an exaggeration of all symptoms.

Examination: Patient is a well developed female, apparently suffering intense pain. There is marked swelling in and about the right eye. Discolored. Ex-ophthalmia is so marked as to appear practically half out of the orbit. Vision in the right eye is 20/50, left eye normal; marked muco purulent discharge from the nose and pharynx; sinuses show cloudiness of the right frontal; X-ray confirmed the diagnosis of the right frontal and ethmoid sinusitis; no mass detected in the right orbit. Leukocyte count 15,200; urine negative except albumin and acetone.

Owing to the acuteness of the condition, it was decided to institute local treatment before any operative interference, realizing that we had a post bulbar infection. Under local application symptoms subsided rapidly with cessation of the ex-ophthalmia; her condition appeared so much better that she was discharged on the 21st, against our advice. However, without operation. She was readmitted on the 25th, with the story of having suffered excruciating pain for two days. A modified Killian operation done, March 28th, on the right side, through which the right frontal was thoroughly cleaned and exsuteration of the ethmoid cells carried out through the frontal wound. Wound closed with drains extending into the nose. Patient made uneventful recovery, was discharged April 3rd, apparently on the road to complete recovery.

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DISCUSSION

Dr. Joseph B. Greene (Asheville): The subject chosen by the essayist is such a large one that I desire to confine my discussion to one phase of the paper, acute antrum sinusitis. I do this because of its great importance, certainly the most frequent sinus we are called upon to treat. The reason for this frequency of occurrence is probably due to defective drainage, and the close association with the teeth of the superior maxilla. The diagnosis of this condition is usually easy, though puzzling cases do arise. A careful history is most important, though an adult patient often makes his own diagnosis. The patient usually complains of a stopped up nose associated with a thick, sometimes a bloody discharge from the nose, and there may be a complaint of sensitiveness of the upper teeth and tenderness over the maxillary antrum, however, in the mild cases these symptoms may be absent. There may be some complaint of headache, though temperature in my experience is not a prominent symptom.

Examination of the nose may show some swelling of the turbinates and a thick discharge in the middle fossa. However, the latter symptom is so often lacking that I pay little heed to its absence. In my experience the most important aid in the diagnosis of antrum sinusitis is transillumination, and so helpful is it that the use of the X-ray is rarely necessary, except in children. If in doubt, it is far better to irrigate, though you will at times wash out a normal antrum.

I agree with the essayist in the use of a small irrigating needle or trochar, less trauma being thereby produced. It is my custom to always try first a straight needle (lichtwitz) in the inferior fossa, and if this fails to enter easily try a small Coakley, a curve needle. Occasionally I find the bones so thick in the inferior meatus that I must resort to a curved instrument through the natural opening. Some workers in our line invariably use this method, though in my hands it has been less satisfactory. In the way of local treatment I am in the habit of prescribing ephedron jelly or other ephedrin products to contract the mucous membrane, facilitating ventilation and drainage. Heat applied over the antrum has proven helpful, not only in relieving pain, but in lessening the inflammatory reaction.

Argyrol-glycerin tamposis have proven most helpful, particularly in cases associated with frontal sinusitis. At times aspirin or codeine are required for relief of pain.

In conclusion I will say that I thoroughly agree with the essayist in the advocacy of conservatism in dealing with the ethmoid cells.

Dr. Fred Elliott Motley (Charlotte): Mr. Chairman, I believe the essayist has made one mistake in quoting Dr. Mosher's approach, in regard to the naso-frontal duct. I have heard Dr. Mosher say repeatedly—it is one of his favorite sayings, a word of warning, is to respect the virginity of the naso-frontal duct. I have heard Dr. Mosher say that a great many times and it is quite characteristic of him.

I agree about the ethmoid. I think an external ethmoid is the only real way we can clean out every cell.

With regard to the malignancy, I think it was very unfortunate, Doctor, that you didn't get it early enough to get the thing cleaned out.

I think one other operative hazard is that of hemorrhage. There are three arteries which give us the most trouble. One is in making the window for intranasal drainage. If this window is carried back far enough you sever an artery that comes up, probably a branch of the palatine, and that will often give you serious hemorrhage. As long as your opening is confined to the front you usually do not get into that artery.

The posterior ethmoid artery is another one that gives us some trouble. The external palatine branch, in opening the sphenoid sinus and enlarging the natural ostium, will often give you trouble, if opened wide. (Applause)

Dr. R. S. Beam (Lumberton): Mr. Chairman, I wish to call especial attention to the occipital pain that we practically always meet with in diseases of the maxillary antrum. I have not noticed it mentioned very much in the literature but in the majority of cases, especially in chronic antrum disease, we have pain in the occipital region, at the base of the skull. I feel that especially in sinus conditions (I am getting off the question of diseases of the maxillary antrum) there is a great field for study and by far the last word has not been said. But I want to impress upon the members of the Eye, Ear, Nose and Throat Section of this Society the importance of this one symptom.

I have noticed that in twenty years' practice. Patients will often come into the office complaining of pain in the base of the neck, in the occipital region, and it might be wise for you to think of the possibility of disease pathology in the maxillary sinus.

Chairman Reaves: Is there any further discussion? If not, I will ask Dr. McCall to close.

Dr. McCall: I want to thank each and every one of you for your few words of discussion.

I did not intend to misquote Dr. Mosher. It is possible to catheterize the nasofrontal duct, but it is such a hazardous thing and it is done very seldom, scarcely ever. I meant to quote him as advising the approach through the agger nasi cells into the frontal, and not by way of the duct, which some people claim can be done.

I don't believe there were any other questions asked that I should answer, but I do want to emphasize conservative treatment of these conditions; of course when operation is required, you must operate. But conservatism is the theme of my paper, and I just wish to emphasize any hazards that we are liable to fall into, particularly that we must always remember the anatomy, different shaped skulls, and so forth.

Thank you. (Applause)

REPORT OF ONE HUNDRED CONSECUTIVE OPERATIONS FOR UNCOMPLICATED CATARACT, WITH THE AID OF RECENT IMPROVEMENTS IN TECHNIQUE

By Henry L. Sloan, M.D., Charlotte, N. C.

Management of the cataract patient is much more intelligent in recent years. He is told that he has a cataract that can be removed with probability of success in almost every uncomplicated case, that the cataract should be removed when it is mature and not wait for the second cataract to mature, and that it can be removed under a local anesthetic, without pain or even dread of the operation. It is important to have a cataract removed before it reaches a state of hypermaturity, as removal of the hypermature cataract is often followed by complications.

Due consideration should be given to the state of the general health. The presence of high blood pressure is not a contra-indication to cataract extraction. We require high blood pressure cases to rest in bed a few days before operation. Retrobulbar injections of procaine and adrenalin tend to lower intraocular pressure and make the operation safer. If the blood pressure is over 180 mm. Hg., Elschnig of Prag, one hour before operating, withdraws eight ounces of blood from a vein. I do not like this idea, as it would tend to alarm the patient, and probably would not lower the blood pressure. It has been the habit of many able surgeons in this country and Europe to advise against operation in patients suffering from diabetes and glycosuria. In our clinic, we are on the lookout for diabetes, but do not hesitate to operate after reducing the blood sugar by the use of insulin and the proper diet. This is atended to by the internist. We have operated on many of these patients with excellent results.

Apropos to this subject, Col. R. H. Elliott[2] has this to say: "Provided the patient is in a good state of general health and is not losing weight, the presence of sugar in the urine is not, to my mind, a contra-indication to the performance of an operation, so long as diacetic acid and acetone are absent. The wound heals well, and convalescence does not appear to be interfered with. It is an obvious indication to make a careful examination beforehand and to attend to the diet and the general regimen on such lines as will insure the patient being in as favorable condition as possible for the ordeal before him."

The patient with high blood pressure, marked retinal arteriosclerosis and general arteriosclerosis, and a sclerosing cataract is a very poor risk. Such patients too often have atrophic retinitis of the macula and are subject to retinal hemorrhages. More than once have I had regrets after operating on such a patient. I always give such a patient a bad prognosis, but this does not keep them from troubling you with carping at the failure to get reading vision.

It is superfluous to remind this group that we must be on our guard not to operate in the presence of untreated lues.

The ideal of removing the cataract in its capsule and thus avoiding sequellae of retained cortex and capsular remnants is fine in theory, and the forceps method is gaining ground in America, and on the Continent. However, the most ardent followers of this method use it only in selected cases. The great majority of ophthalmic surgeons, the world over, do the capsulotomy operation. Even the intracapsular enthusiasts employ it in the majority of cases,—certainly in the more difficult extractions. Through the discussion of the intracapsular operation, a world-wide interest in cataract surgery has been renewed. The intracapsular method is more difficult and calls for greater control of the patient's eye. Out of this demand many improvements in technique have resulted. These improvements have done much to remove the troublesome sequellae of the classical extracapsular operation.

But I shall not go into great details. I wish to call to your attention a safe method for care of the cataract patient:

1. Admission to the hospital twenty-four hours before operation.
2. Culture from the conjunctival cul-de-sac twenty-four hours before operation.
3. "Basal" or "mental" anesthesia.[4]
4. Local anesthesia.
5. Paralysis of the orbicularis palpebrarum.
6. The section.
7. Conjunctival sutures.

Admission to the hospital twenty-four hours before operation is important so that these patients who are old, entering the hospital for the first time, and just as often fearful of blindness, may become familiar with their hospital surroundings. I also request that some trusted member of the family remain with them for the first few days after the operation. These precautions, especially the familiar voice of some member of the family, do more to prevent delirium after cataract extraction than all the sedatives available.

A culture, on a brain-veal agar medium, from the conjunctiva is made on admission, twenty-four hours before operation. If there is no growth, or only a few colonies of staphylococcus albus, the eye is considered clean and the operation is done. If the eye shows the slightest look of inflammation, I think Barraquer's[7] practice of closing over-night the eye to be operated a good extra precaution.

"Basal," or "mental" anesthesia, as it is known, is very important. Every effort should be made to have the patient brought to the operating room in a good frame of mind, without fear or anxiety. Our practice is to give three grains of sodium amytal at bedtime the night before and one hour before the operation. With this preparation, which is quite simple, the patient comes to operation without any dread. Various other sedatives are used. We are strongly opposed to morphine, hyoscin and such. They often excite, and morphine frequently provokes nausea and vomiting.

When sodium amytal is not effective we have to supplement it with some other drug. We do not operate until the patient is in a quiet frame of mind. This is important. It removes the desire of the patient to move, or "act up badly." I recall one case recently whom I allowed two drinks of corn whisky, because she said this was the only drug that would quiet her. And its effect was all that could be desired.

Complete local anesthesia is important. The operation should be painless, and always is, with the proper use of local anesthesia. We use four per cent cocaine drops and one per cent procaine, subconjunctivally in the lower bulbar conjunctiva and rather freely.

Control of the orbicularis muscle is very important. Van Lint of Brussels advised this very important improvement in technique, in 1917. It has been used at the Massachusetts Eye and Ear Infirmary since 1920. I have been using it since I first heard about it, in 1922. I regard it as the most important improvement in a generation. At our hospital we infiltrate the lids with one per cent procaine by puncture with the needle one centimeter to the temporal side of the outer canthus, at the outer margin of the orbit, and pushing it along the upper and lower margins of the orbit, infiltrating the lids for about two centimeters. Another puncture, with infiltration, is made next to the nose, just above the inner canthal ligament. O'Brien's method of nerve block is just as effective, but not so simple. Paralysis of the orbicularis follows almost immediately and also anesthesia of the lids. We have used "akinesia" in hundreds of cases, and have yet to have the slightest complication from its use.

The section is the most important single step in the expression of cataract. It should be ample, just at the limbus and should include a conjunctival flap throughout its length. When this is done it is easy to employ conjunctival sutures. When the section is made we place two conjunctival sutures and loop them, ready to be tied as soon as the cataract is delivered. We make a square flap with scissors before making the section. (Dr. John Green of St. Louis described a very similar operation in 1926. I had not seen his article until a few weeks since.) When these sutures are tied you have a completed surgical procedure and the wound firmly closed just as in an appendectomy or any other operation. With the lids paralyzed, you can operate with more security. You can remove the anterior lens capsule more completely with reduction of the number of secondary cataracts. Delivery of the lens is facilitated and when once the lens is delivered and the section closed with sutures, you can attend to removal of retained cortex and complete the toilet of the wound leisurely and with safety. I have had no experience with the bridle suture of the superior rectus muscle, which was originated by Blascovics, and which is highly recommended by McReynolds, Col. Elliott, Oláh and others.

By use of these safeguards, loss of vitreous and prolapse of the iris have been greatly reduced. If the patient should vomit, get out or fall out

of bed, there is very little danger of injury to the eye. The patient can be propped up in bed with a back rest immediately upon return to his room. The day after the operation, the unoperated eye is left open and the patient can be up out of bed. This is very important in very old people, as a preventive of hypostatic pneumonia and delirium. And what is very important in this day of economic distress, the stay of the patient in the hospital is shortened to one week.

A paper can, with profit, be written on any one of these points of technique, but I shall not go into any more detail.

I now wish to report the results of one hundred recent, consecutive operations for uncomplicated cataract. By uncomplicated cataract I mean all cases that offer a reasonably successful issue. I exclude those with glaucoma, traumatic cases with perforating wounds of the cornea in the pupillary area, those with uveitis, with a tremulous iris and fluid vitreous, and any cataract with poor projection of light. Obviously, such cases offer very little hope of restoration of occupational vision.

Of this 100 cases, 87% had 20/40 vision, or better. Of this 17% had 20/16 vision, 35% had 20/20 vision, 31% had 20/30 vision, and 4% had 20/40 vision.

One patient had 20/40-1 and read ordinary print. One had 20/40-3 (71 years old and a bad diabetic). One had 20/50 plus 1 (senile macular retinitis). One had 20/50-2 (secondary membrane). One had 20/50-1 and could read ordinary print. This patient was operated December 30, 1931, and was refracted January 6, 1932. He did not return for further refraction, but the eye gave promise of good vision. Four had 20/70 vision, and one had 20/100. One of these was the patient with fluid vitreous, with caught pillar, and the other four were cases of congenital cataract with likelihood of improvement of vision after use of glasses.

One patient did not return for refraction, and two others died of pneumonia after leaving the hospital, before they were refracted. However, these operations were without complication and upon discharge from the hospital gave promise of good vision.

There was no prolapse of iris. But one patient had an incarcerated iris, as he had fluid vitreous and when the lens was delivered the vitreous escaped freely; and, although the sutures were tied immediately, the vitreous pushed the temporal pillar up and out and was slightly caught in the wound. The outer pillar was replaced a number of times, but each time it would slip back and was caught. This patient had a rather prolonged convalescence, and it was necessary later to do an iridectomy, after which the eye quieted down somewhat. The vision, however, was never better than 20/70, and his eye remained very sensitive to light.

There was slight increase of tension in three eyes after Zeigler complete discission, but the elevation of tension was slight and lasted but a few days and did no harm.

Loss of vitreous occurred in four cases. There was threatened loss of vitreous in six others, but immediate closure of the wound prevented this accident. Loss of vitreous had no effect on the outcome, except possibly in one case.

There were two eyes which had a small amount of hemorrhage in the anterior chamber. One happened on the fourth day, cause undetermined, and the other happened on the fourth night. This patient dreamed that he was falling, and he threw up his hand and struck his operated eye. However, these cleared up with 20/20 vision.

One patient had a slight hemorrhage at the macula five weeks after operation. At this time she was quite sick with pyelo-nephritis. The hemorrhage cleared up promptly, however, and her vision was 20/30 plus 1; and this was the best vision she had ever had, as she was a high myope, wearing a —16.00 lens before this eye, since childhood.

There was no case of intraocular infection.

(Lantern Slides)

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DISCUSSION

Chairman Reaves: Dr. Sloan's paper is now open for discussion.

Dr. Jas. M. Lilly (Fayetteville): I wonder what the experience or opinion of you men is in regard to operating on one mature cataract in an older person when there is no cataract in the other eye. That may be a rare situation but I have had in my practice a number of cases of men past seventy with one mature cataract and normal vision in the other eye. When properly refracted it remained that way until death and I didn't have to put them through the inconvenience and discomfort of a cataract operation, and I think they were better off than they would have been with an operation, for the simple reason that their eyes would not have worked together after the operation, anyway.

That is a question that I should like to hear more discussion about.

In regard to operating in diabetes, I think Dr. Sloan is thoroughly right.

Dr. Fox of Philadelphia made a statement in the last edition of his book that you would get just as many good results in your diabetics as in people who did not have it if you used the proper precaution in getting them as nearly sugar-free as possible before operating.

I was glad to hear Dr. Sloan say what he did in regard to the capsulotomy rather than the intracapsular method of operating. I have never done an intracapsular operation except accidentally, when the patient squeezed, before the days of giving akinesia, and popped the lens out before I was ready to deliver it. In that way, I have had a few intracapsular operations.

That was impressed on me at an International Congress of Ophthalmologists in Washington in about 1921 when Dr. Barraquer was in this country. He read a paper at that Congress on his method of cataract extraction by suction. Dr. Elliott, who I think is one of the greatest ophthalmologists the world has produced up to now, in discussing Dr. Barraquer's paper, said, "In Dr. Barraquer's hands this is a wonderful operation but I want to sound a word of warning to you young men here not to go home and undertake this operation until you have done hundreds of them on kittens' eyes, because you will ruin many, many eyes if you do."

He concluded his discussion by saying, "If I am ever so unfortunate as to have a cataract and to require an operation, I shall select an ophthalmic surgeon who will do a preliminary iridectomy and after a few weeks will do a capsulotomy and extract the lens, and if necessary do a needle operation later."

In regard to the preparation for cataract, I can't recall the name just now but you will all know who it is, the head of the Department of Ophthalmology at the Mayo Clinic, a year or two ago at the American College of Surgeons, in discussing the cataract operation, said, "We have abandoned all preliminary treatment except that we give the patient a sedative the night before; if the eye looks healthy we do not make a smear. We examine it and if the tear ducts are in healthy condition we give him bromides or some sedative, and after a good night's rest do the operation."

I was very interested in Dr. Sloan's flap operation. For several years after seeing someone (I don't remember who) in Detroit operate under a conjunctival bridge, we have been doing all of our cataracts under a bridge. It does away with the necessity of the stitch, and, contrary to what I expected, does not interfere with the iridectomy, and we like it better than anything we have ever tried to do.

There is one little thing we have done in making the conjunctival bridge that is different from what I have seen described elsewhere. We

make the bridge the first thing. We dissect up the conjunctival bridge from about the middle of the limbus above, upward, about three or four millimeters wide, and push down underneath it over the margin of the limbus, then make the section in the usual way, coming out under this. There is plenty of flexibility to pull the iris out to the side of the bridge to do the iridectomy and to irrigate after the extraction of the lens, and the healing is more rapid, and it does away with the necessity of a stitch.

I want to say I have enjoyed Dr. Sloan's paper and would like to know if anyone here has had experience with the conjunctival bridge rather than the conjunctival flap.

Dr. Ben Witt Key (New York): Mr. Chairman: Just one word about this very excellent paper. I feel as Dr. Sloan does about the advances made since novocainization of the lids has been perfected, and also as to the value of the conjunctival flap.

As to method, I believe that we have very few men who are doing the intracapsular operation. Cataract extraction is serious enough under the most perfect conditions and when we add to it the hazards that are unnecessary, I think we certainly want to know who is performing the operation. Certain cases are particularly adapted for the intracapsular operation, but all are adapted for a large conjunctival flap and the regular technique of extraction with novocainization of the lids. The method is very important.

For example, I may mention a case of immature cataract suitable for intracapsular extraction. The whole lens was very clear with posterior polar opacity just covering the pupillary area (case of retinitis pigmentosa), in which the patient had only a field of ten degrees and therefore was helplessly blind because of this posterior polar cataract. Knowing the pathology here, we made the regular incision, reached in with the capsule forceps and lifted the lens out. Why? Because in retinitis pigmentosa the zonula is very delicate, and on extraction there is only slight traction on the ciliary body.

The same thing is true in certain cases of green cataract but sometimes we cannot be certain that the green cataract has a delicate zonula, and so it becomes a hazard. So far as extraction after iridectomy, combined extraction and simple extraction are concerned, the same thing is true. Certain cases are suitable and really require the simple extraction. Where the anterior chamber is deep, the paitent is fairly young, and the lens quite mature, simple extraction is just as safe as an extraction after or with iridectomy, and the result is obviously more desirable.

Dr. Frank C. Smith (Charlotte): I do believe that sodium amytal is the best drug that we have found. It seems to cut down anticipation, relieves fear and leaves the patient perfectly conscious and co-operative. I think this drug has definitely made the operation less difficult.

In regard to the flap, it unquestionably has relieved us a great deal, in so far as our fear of washing the anterior chamber is concerned, also in

replacing of the iris and fear of later complications from improper closure of the incision. The iris should always be most carefully replaced.

One other thing which helps considerably is the use of a large lens hook. We catch the lens with a slight rotary motion that breaks the posterior fibres of the lens; we have not had, since we have used it, a single case in which the lens has stuck.

Dr. V. M. Hicks (Raleigh): Mr. Chairman, I think we needed only to hear Dr. Sloan's paper to realize that, in the first place, he is a very safe cataract operator.

We all love to talk about our operative work and our operative procedures. I like to think about my cataract work from the standpoint of the individual patient. That was brought out and emphasized by Dr. Lilly. For instance, the question of the extraction of the cataract in one eye where it does not exist in the other is certainly an individual problem.

One cannot lay down a rule, in justice to himself, without having to vary from the rule in justice to his patient at times.

I am perfectly certain that I have seen cataract in elderly individuals that undoubtedly was traumatic in origin, and the lens in the other eye was perfectly clear.

I think in such a case as that you can be reasonably certain that the patient will live out his expectancy without any undue fear of a hypermature cataract developing, or cataract developing, in the other eye.

I think that this question of the hypermature cataract should require particular attention when we are dealing with a fairly young individual. Certainly it is a very dangerous procedure in the hands of the best operators, when you are dealing with a hypermature cataract. But when you are dealing with a patient past seventy and even, as we do occasionally, a patient in the eighties, with a cataract in one eye, and the other a seeing eye, for their own personal satisfaction it would be rather unwise to tackle such a cataract.

I have enjoyed Dr. Sloan's paper and it is inspiring to know that that type of work is being done in the state of North Carolina.

Thank you. (Applause)

Chairman Reaves: Is there any other discussion of Dr. Sloan's paper? If not, we will ask Dr. Sloan to close.

Dr. Sloan: As to operation on the second cataract, I still feel that it is wise to operate the second eye even after a successful operation on the first eye. However, there is no rule that we do not break at some time. Senile cataract is probably a trophic change, like the graying of your hair; and I believe that if we live long enough, all of us will have cataracts. I have never yet seen a person ninety years old who did not have a cataract.

Colonel Elliott, in a contribution to the British Medical Journal sometime in 1929, points out that the probabilities are that if the patient has a senile cataract in one eye, he is going to develop one in the other eye; and he thinks that the second eye should be operated when the patient

develops a cataract in this eye, even though he had a successful operation in the first eye. He points out that each year brings its increase of hazards in old age; and, in addition, if the cataract is allowed to become hypermature, extraction is much more liable to be followed by complications. He also says that it enlarges the patient's field of vision and gives him protective vision which is quite worth while, and he thinks that being in crowded cities with heavy traffic is quite a good indication for operation on the second eye.

A. Knapp discusses this very point in a recent paper, and he agrees with the position taken in this paper; and, Dr. Lilly, if you will get the British Medical Journal for, I think it is July, 1929, you will find a discussion of this point. You seem to admire Colonel Elliott very much, and he discusses this point and many other points in connection with the management of cataract in the most interesting way I have seen it done in a long time.

Chairman Reaves: The next paper is "Headaches in Relation to Eye, Ear, Nose and Throat," by Dr. R. B. Wilkins, of Raleigh.

HEADACHES IN RELATION TO EYE, EAR, NOSE AND THROAT

By Dr. R. B. Wilkins, Raleigh, N. C.

It is not the purpose of this paper to try to teach something new or to show a lot of new methods of doing things, for in all the literature there is little to be found that is new on this subject. This is more or less a review of what has been said about headaches.

Headache as a symptom has been known since the beginning of medicine and it has been known as a symptom in nearly every disease, from an ingrowing toe nail to an abscess of the brain. And as it is such a common symptom in as many as 40% of all the patients that all physicians have, it behooves the profession as a group to take note of this very important symptom. Instead of saying "Just another headache," these cases should be gone into more thoroughly and it should be seen to that the patient has a thorough examination. Before making a diagnosis of nervousness or hysteria, which so often happens, if not satisfied, send the patient to some physician who will make a thorough examination regardless of what is found.

As a group of head specialists, as so often called, it behooves all physicians to go into a detailed examination of the head and when the word "head" is used, it includes the head in its entirety and the aches thrown in as good measure. Bearing in mind that a headache may be a danger signal of almost anything, if the profession does not find the real cause and explain, if not relieve, these patients usually drift into some quack's office who guarantees a cure which is what they are all looking for. So most likely the next time the patient is seen, he is without money and in worse condition. The quack has the money and this partially explains the

quack's existence. So do not jump at conclusions, but be thorough and if not satisfied, call in a brother physician to help solve the problem.

When thinking of headaches, think of the different groups of diseases in which headache is a symptom. First, one might take different groups of eye diseases as from 40% to 70% of headaches come from eye strain. Hyperopia that needs a correction of from a +.25 sphere up and a group of myopic cases which need a —.25 sphere up, and a group of astigmatic cases that need a correction of a + or —.25 cylinder or more of any axis, regular or irregular, are among the common causes of headaches. The degree of error seems to have very little to do with the intensity of the pain; in fact, it seems that the slightest error gives the most pain very often, and this has been explained by some in this way: if the error be too great for the ciliary body to overcome, there is little effort put forth, but where there is a very small error, the ciliary body works over time trying to correct the error. The same refractive error in different patients may be entirely different when it comes to giving symptoms. Some patients complain always and others do not have any pain whatever. There might exist for a long time an error of refraction which will start giving symptoms all of a sudden.

Then, of course, there are many headaches from unbalanced muscles which will cause all kinds of symptoms, but the most frequent is a small error of a .25 cylinder.

And the pain that is caused by glaucoma must not be forgotten. Usually temporal pains and pains in the eye proper as well as general head pains may be present.

Another important factor is the position of the eyes. They are very closely connected with the central nervous system, both by nerve connections and location.

Then there is the history which means so much in so many cases and which may save the physician a lot of time, worry and perhaps embarrassment. In considering a history, first, there is the site of the pain, whether circumscribed or diffused. It might be in the frontal, occipital, orbital or basal region, or one or more of these places at the same time. Also the pain may be deep or superficial; second, the time of day of its appearance; third, whether the headache is constant or intermittent; fourth, the frequency and duration of the pain—whether daily, weekly, etc.; fifth, association of symptoms such as vomiting or photophobia; sixth, the relation in frequency of headaches to causes, first the eye, always bearing in mind that muscle unbalance always contributes its share of headaches which are usually hard to locate and treat.

Second only to the eyes, headaches are more common in nasal and paranasal defects and are probably the most common affection among otherwise normal people. So nasal and paranasal defects are the second most common cause of this constant symptom, headache. When patients complain of headaches over a long period of time and no deep seated

trouble is found, in fact, no diagnosis is made, the nose and sinuses should be instantly suspected as being the seat of the trouble, remembering all the while that the fifth nerve coming from each side is one of the most important cranial nerves of sensation and many of its terminal branches are distributed in the nose. And as the nose is located in the center of the head, it is, therefore, easy to see why we should suspect the nose and sinuses of causing a great deal of the headaches, bearing in mind that it is not always easy to differentiate a nasal headache from one of another cause.

Pain may come from an ordinary cold or from vaso-motor disturbances causing pressure in the cranium or in the nose. Pains coming directly from the nose are caused by a deviated septum or broken septum; enlarged turbinate, tumors, malignant or benign; narrowing of the nasal passages by any means, mechanical or otherwise; blocking of the sinus drainage; or pressure on the nerve endings. The most frequent of these is pressure on the nerve endings.

Another cause of headaches is pollen dust or anything that causes irritation or congestion of the mucous membrane, which, of course, is made worse by bending forward or anything else that causes an engorgement of the tissues. Pain may be caused by septal abscesses, adenoids, periostitis or some other infection, crust or scab-like formations in the adenoid region or the mucous membrane of the nose may have referred pain from a dental defect. So often pain is transferred from the maxillary sinus to the frontal sinus with very little if any pain over the maxillary. There is no set rule or guide by which a differential diagnosis can be made, but a routine examination should be made. Nasal headaches usually occur in the morning, but the general rule does not always hold good; for instance, acute empyema with obstruction and a septal infection causes aches all the time. Sphenoidal or post-ethmoidal infection may cause dizziness or an ache in any part of the head.

Everything possible should be used in arriving at the cause of this amazing symptom: any and all instruments that are available, transillumination, X-ray, and external and internal inspection. Then as to the treatment and relief of the patient, which is usually no easy job, every effort must be made. Most cases should be treated first and if no relief is gained, then operate. Conservative treatment and conservatism in operating must be used, for all the mucous membrane should be conserved if possible lest we have a dry nose which is extremely annoying.

Careful study, investigations and examinations have been the means of relieving a great many headaches of obscure origin. These may have been caused by irritation of the nasal ganglia which may have been inflamed by one cause or another. There may be referred pain which can cause a great deal of nasal pain. These ganglia are small and located close to the sphenoidal foramen and above the posterior tip of the middle turbinate. Of course, these ganglia can be cocainized and if the headache is relieved,

that is positive proof that there is some trouble along the line of nerve supply or in the ganglia proper. Many experiments have been made on these ganglia, for example, using from 2% to 20% solution of silver nitrate and from 2% to 20% solution of phenol in glycerine. Some have injected 5% phenol, some 95% alcohol, of course, first thoroughly cocainizing the parts. But even with all care and using all experiments and methods some times it seems that some headaches cannot be relieved, until old Mother Nature takes a hand.

As for throats, there may be persistent headaches from chronic abscessed tonsils or a chronic low grade infection in the tonsils or perhaps an acute or chronic diffuse inflamed throat.

The ear seldom gives any headache to speak of; if so, there should be a thorough investigation for there will likely be some irritation of the brain membranes.

In conclusion, every would-be specialist should have a thorough knowledge of the human body and all its diseases and consider them when trying to make an examination and diagnosis in order to treat headaches intelligently.

DISCUSSION

Dr. B. W. Fassett (Durham): Dr. Wilkins is to be commended for bringing before this section a subject which is of general interest and which occupies such a leading rôle in the busy life of the specialist.

Headache is one of the most important disorders to which mankind is subject and it ranks with the common cold as one of the two great causes of human misery and incapacity. Both the conditions in which the patient is neither sick nor well; not sick enough to cease work and not well enough to take an interest in his daily duties. It is very fitting that members of medical societies should from time to time revert to this topic, exchange observations and help one another in their search for causative factors. Any contribution, therefore, which can be made towards the relief of this condition, will be conferring a blessing upon both patient and physician.

In considering headaches in relation to the eye, ear, nose and throat, we should not be bound by the narrow confines of any one branch of medicine but have an accurate knowledge of headaches in general because a large number of our patients are referred, and the specialist's office becomes a clearing house, as it were, and we are called upon to differentiate between the cases due to dental or systemic infection and those which can definitely be ascribed to our own field of endeavor.

A valuable point in the doctor's paper and one which cannot be overemphasized is the importance of careful, painstaking history of each case. Most of us associate two or three symptoms as a short cut to a diagnosis. The laborious method of inductive reasoning, as taught in medical schools, does not fit in with a large practice, and this, no doubt, is the most

frequent cause of our failures. A careful history is often more important than the physical examination.

As to the correction of small errors of refraction we need not expect the good results with which the essayist has been favored unless we exercise superior judgment in determining those to whom glasses should be given. Eye strain, as a cause of headache, is not explained by the degree of refractive error but by individual characteristics and the physical condition of the patient. If we would expect good results to follow the prescribing of fraction of diopter lenses we must take into consideration the age of the patient, his physical and mental health, occupation, number of hours employed and conditions under which he labors. It would be unreasonable to expect a child with perfect muscle balance and a powerful ciliary muscle to be benefited by a small spherical correction, but the adult approaching the presbyopic age would find in them a needed relief.

The Doctor's concluding remarks in reference to the importance of a general knowledge of medicine are most commendable and while it is not absolutely essential it affords an excellent background for those wishing to specialize in any branch of medicine or surgery. It is a reflection upon the profession to see the number who are wearing glasses unnecessarily or are the victims of needless operations each of which should be seen less frequent as we develop a generation of specialists well grounded in the fundamentals of the general practice of medicine.

Chairman Reaves: The subject is now open for general discussion.

Dr. J. S. Mitchener (Raleigh): When anybody comes to us with a headache, we must really look. I don't care so much where they say the headache is as when they say their headache is. Whether the headache is here (indicating) or back there—I can't get anything out of that. They have it, and no matter where it is they come to us to seek relief. But if they can tell me when they have their headaches, I feel like that will give me a lead, so to speak.

The first question I want answered is whether their headache is worse when they use their eyes.

But there is one thing which is interesting to me and which I can't answer. A man will come in with headache, which he says is worst when he uses his eyes. I examine him and find that he needs cylindrical correction. He will have his headache relieved when he reads. He doesn't have a headache except when he uses his eyes.

Another man will come in who has his headache all the time. That man will be relieved but he has to wear his cylindrical correction all the time.

Another man will come in who will require the same correction. Your examination shows he needs it but he doesn't have headache at any time.

I haven't got sense enough to answer that and it is something that I really would like to know.

We have got to differentiate—and it is hard to do—between headaches and neuralgia, because your cause and your treatment are, naturally, a whole lot different.

One citation, and then I shall be through.

A woman around fifty years old was brought in to me one time by her two sons, one on one side and one on the other. She was sent in by her physician for a sinus condition. She had been having the headache for practically two months. Transillumination was negative. There was no history of cold. She had what looked like a satisfactory refraction. She read 20/20, with what she had on.

Looking at her nose, there was no evidence of cold, but getting back to what I said a while ago in the discussion of the other paper, she had a deflected septum. I cocainized her anterior ethmoid nerve, and I said, "Come back tomorrow. Possibly you will come back with your headache."

She came back and for three consecutive days I tried it. For three consecutive days I got relief. I operated on her and she was relieved.

I wish someone would also tell me why it was that this woman, fifty years old, reacted in that way. Her septum was just like it was since she was twenty, because she gave no history of any trouble. Of course, I know that she had had in those twenty years an enlargement possibly of her turbinate, hypertrophic changes in her mucous membrane. But, anyway, she had a therapeutic test; she had an operative test. I saw her about a year or so ago and she said that she had had one headache since.

So there is a difference between the man who has his glasses and uses them all the time, and the man who has the same error and doesn't wear glasses, and the person who will carry the same condition for a good long time and then will develop a headache. And that is what bothers me. (Laughter)

Chairman Reaves: The next paper is, "Syphilis in Eye, Ear, Nose and Throat Practice. A study of two hundred and twenty-five syphilitics presenting themselves at the McPherson Hospital with symptoms referable to eye, ear, nose or throat as initial complaint." This paper will be presented by Dr. Wm. Banks Anderson, of Durham.

SYPHILIS IN EYE, EAR, NOSE AND THROAT—225 CASES

By Wm. Banks Anderson, M.D., Durham

Syphilis plays an important, puzzling, and in many cases hidden rôle in the trials of ophthalmologists and otolaryngologists. A recent study undertaken by the North Carolina Board of Health led to an estimate that in a cross-section of our community 10% of whites, and 30% of negroes would give serological evidence of the disease. Dr. J. N. Stokes, formerly of the Mayo Clinic but now of the University of Pennsylvania, in conclu-

sions based upon his studies at these two institutions, asserts that 24% of all syphilitics first present themselves with symptoms referable to eye, ear, nose or throat.

I have attempted here an analysis of some two hundred cases encountered at the McPherson Hospital during the past three years. These cases represent about 1.33% of our new cases during this period. As will be seen, this is a much smaller incidence than would be expected. This low incidence is undoubtedly due in part to the relatively large number of college students among our case histories. It must also in part be due to the fact that we are overlooking some of our syphilitics.

The following is a tabulation of our analysis of our cases. The cases divided according to complaint fell naturally into the following groups. The only confusion being the cases of congenital syphilis which I have separated in the first group and labeled I.K., and in the failure of vision due to optic atrophy, which I included among the cranial nerve palsies, as separating these cases from failure of vision due to iridocyclitis. One might readily object to such a classification of optic atrophy. However, in our small series of such cases we found that the age groups coincided, and that on such a basis they would naturally fall here. In this case it is to be understood that the grouping is emperical and does not take into account the peculiar pathology of the tabetic atrophy.

	%	Total No. Cases	Av. Age	Wh. Men	Av. Age	Wh. Wom.	Av. Age	Whites	Av. Age	Col. Men	Av. Age	Col. Wom.	Av. Age	Col. Total	Av. Age
Loss of vision	30.5	61	35	15	39	6	31	21	30	22	40	18	40	40	35
Red eye															
Painful eye--I.K.	9	18	13	6	11	4	22	10	15	2	7	6	15	8	11
Headache	18.5	37	28	6	40	5	23	11	31	4	25	22	28	26	26
Pain in throat															
Fullness in throat	11.5	23	24	5	27	5	21	10	24	8	25	5	23	13	24
Pain in nose															
Nasal obstruction	10	20	44	3	46	2	–	5	46	8	38	7	43	15	43
Dizziness															
Ringing in ears															
Loss of hearing	9.5	19	38	3	45	3	35	6	40	5	37	8	37	13	37
Double vision															
Failure of vision. (atrophy)															
Numbness of face															
Inability to close eye	6	12	43	5	41	0	0	5	41	6	46	1	45	7	45
Hoarseness	5	10	28	3	28	2	25	6	26	3	32	1	–	4	32

Grouping these patients in to 10-year age periods we have:

In the second decade	9%—18 cases—average age 13. Interstitial keratitis—congenital syphilis.
In the third decade	35%—70 cases—average age 26. Symptoms generally referable to secondary syphilis, i.e., headache, hoarseness, sore throat.
In the fourth decade	40%—80 cases—average age 36. Presenting with an unquestionable syphilitic iridocyclitis, or with the more puzzling lesion in the ear resulting in the symptoms of vertigo, tinnitis, or loss of hearing.
In the fifth decade	16%—32 cases—average age 44. Presenting with cranial nerve palsies, or gummatous alterations in the nose.

It will be seen at a glance that our cases naturally fall into definitely pathological groups.

(a) The second decade which is congenital.

(b) The secondary manifestation of the disease.

(c) Those cases of the fourth grade, poorly understood as to pathology, but generally designated as late secondary.

(d) Those cases representing the changes of tertiary syphilis.

I shall attempt in the remainder of this paper to correlate the symptomatology as presented, with the pathology; digressing at intervals to show where and how we have fallen into error.

Cases of interstitial keratitis need little discussion. In my experience the lesion has always appeared characteristic. One is aided in diagnosis by the other stigmata of the disease. If the question of diagnosis should arise one should remember Stokes' warning that in congenital syphilis of the second decade, 60% give a positive Wassermann, whereas 70% show stigmata which to the experienced and observant physician make diagnosis certain. He is further authority for the statement that in the third decade the positive Wasserman drops to 40% whereas the stigmata remain the same. In my own experience my major difficulties in diagnosis are due to failure to maintain an open and unprejudiced attitude towards the patient. We have in this series one boy, of parents presumably beyond suspicion, who lost the sight of one eye in infancy, probably because of his disease. I later saw him when eleven years of age, when the second eye was involved, and made a diagnosis of sympathetic ophthalmia. This boy's parents had already secured reservations to go north for confirmation of my diagnosis when the boy happened to smile in my presence. This was after a week's stay in the hospital with local treatment. His smile revealed a textbook picture of Hutchinson's teeth. He had a typical interstitial keratitis, which I had been unable to see because of the social status of his parents. He had a positive Wasserman, though both parents had nega-

tive Wassermans, and denied syphilis, both by name and symptom. This particular case responded favorably to treatment. Unfortunately the treatment is usually more difficult than the diagnosis.

Passing now to those patients falling in the 20 to 30 year age group we find—

18.5% complain with headache.
11.5% complain with sore throat.
5 % complain with hoarseness.

Because of the uniform age grouping, 20-30 years; because the onset of symptoms has followed within two years, practically always with six months the date of the primary lesion—in those cases in which the time of the primary has been ascertained, and because the enlargement of the tonsils is associated with, and accompanies the general glandular enlargement recognized as being a characteristic of the first general constitutional invasion of the spirochaete, we believe that these symptoms of headache, sore throat and hoarseness may be regarded as secondary manifestations of the disease.

The pathological background for the headaches is poorly understood. By some it is thought that the headache is only a manifestation of absorption of toxic substances such as accompany any other general infection. Others think they are due to localized meningitis, others to localized pereostitis. Probably all, or any one of the three views are correct for any one case. Our cases would indicate that the symptom "headache" as associated with syphilis has no peculiarity of location, time of onset, or character of pain, which would characterize it as the result of syphilis. Indeed, four of these cases had definite roentgenological and clinical evidences of sinus infection. It was only after the administration of appropriate treatment of the sinus disease had failed to give relief that syphilis was considered.

The syphilitic sore throat should not present any difficulty of diagnosis. Yet here again when one's judgment is influenced by the social factor, error creeps in. In this series of cases I find four patients from what we are pleased to call the higher social stratum who gave a typical history of recurrent sore throats, colds, rheumatoid pains, etc., on whom we had done a tonsillectomy. I personally operated two of these cases after a negative Wasserman had been returned only to find on subsequent examination of the blood a positive Wassermann. The pathological picture in these cases is that characterizing the well known round cell hyperplasia of all lymphoid tissue during the secondary stage of the disease.

If the patient is seen at a later stage when the tonsils have become ulcerated the differentiation between Vincent's infection and lues is not so easy. Stokes makes the point that the ulceration in syphilis is shallow while that in Vincent's is a deep erosion. Dr. D. T. Smith, who knows something of spirochaetes, is of the opinion, and it seems sound to me, that the luetic ulcer, so-called, is in reality a mixed infection—a Vincent's

infection superimposed on a syphilitic tonsil with low resistance. Four of our white patients in this series, presumably because of social status, were first diagnosed as Vincent's. One was a junior in one of our universities. He denied a primary. His college physician had one negative Wasserman. His tonsils ulcerated before his other secondary manifestations began. Almost an entire week was lost before a coincident alopecia prompted a second Wasserman with a correction in the diagnostic error. Another one of these four cases was a highway engineer treated in another town for Vincent's infection which was persistent until one shot of Neo. was given. He promptly recovered, to have a recurrence of his "trench mouth" several weeks later. I fell into the same error until mucous patches elsewhere in his mouth called for a Wasserman. Fortunately, the one shot of Neo. did not obscure the picture by giving a weakly positive reaction.

Hoarseness was experienced by only ten of our patients, 5% of the whole. This falls considerably below the percentage expected if one uses the experiences of the larger clinics as a guide. All our cases showed a localized induration in the neighborhood of the posterior arytenoids. None showed any evidence of paresis of innervation. However, I am well aware that such a condition exists. I am inclined to the view that we have here such a small series that we have not chanced as yet to encounter any of this group. Indeed, I think one would fall into error in any attempt to draw conclusions from such a small number of cases. Suffice to say that in our experience hoarseness represents, along with headache and sore throat, a trend of symptoms which properly appraised should, in the words of Stokes, yield a rich harvest of early syphilitics.

Passing on to the 30/40 age groups, we find 61 cases, 30.5%, coming in complaining that the eye is red, the vision failing, rarely with pain in the eye. Here we do not so often fall into error—perhaps because the patient is very much concerned as to his condition and continues to come to the physician until a Wasserman is done. In this series of 61 cases there were, however, three cases of iris bombe with secondary glaucoma, eyes that might have been saved had the patient presented sooner. There is also one case with massive corneal slough associated with 7th and 5th nerve paralysis. The so-called syphilide of the iris said to be chronologically analogous to the condylomata of the vulva, small nodules at the pupillary border or periphery of the iris, were only present in two of our cases.

The manifestations of late secondary syphilis in the ear are confusing. One might almost say that the diversity of signs is only limited by the number of cases. We have here a series of 19 cases, 9.5% of our total. It has been argued that the disturbance in auditory function might be due to inflammation of lymphoid tissue in the eustachian tube. This does not seem to me sound, because there is in this stage seldom general lymphoid enlargement. Cases have come to autopsy showing invasion of the membranous labyrinth with small round cells. Many authors hold

the view that the cochlear portion is by far the most frequently affected. This I have not found to be true in our small series. It is my impression that most syphilologists now consider the auditory symptoms as suggestive of a recurrence, or exacerbation of a dormant disease. In this connection I would like to cite a case, tragic in its consequence, which reveals the importance of recognizing syphilis even in the absence of a positive Wasserman.

This was a colored graduate nurse, 30 years of age, whom I first saw when she came in complaining of a pterygium. This was removed under local anesthesia. At that time the patient's hearing was apparently normal. She came back one week later with marked loss of hearing. Forks of high frequency could not be heard by either bone or air. Audiogram reading gave an estimate of 50% loss. The vestibular tests showed irritation of the labyrinth. A Wasserman was immediately done. Syphilis was denied by name and symptom. The first Wassermann was negative, a second Wasserman was done, this was negative. A spinal puncture was done a week later. This was negative in all respects. By this time the patient was completely deaf. Vestibular tests showed no response of labyrinth. Two days after the spinal puncture the patient had a convulsion with paralysis of the 7th and 9th nerves on the right side. I attributed this to my spinal tap—at this time the patient passes from under my care, and I must say that at that time I could not blame her. She later reappeared at the Duke Clinic, practically totally deaf. Spinal puncture done there three months after my disastrous experiences showed a plus four Wasserman. I am now convinced that this girl was not giving me an accurate history, that even at the time I saw her she was getting, probably from the physician by whom she was employed, a drastic course of Neo. and that what I was dealing with was a Herxheimer reaction, unfortunately not recognized and costing the girl her hearing. To me no phase of syphilis as encountered in our speciality is so puzzling, no phase requiring closer co-operation and understanding than the late manifestations in the ear. I say this fully aware that many of my conferees will take exception and substitute the involved optic nerve.

Proceeding to the 40 to 50 year group, we encounter 23 cases complaining of pain or obstruction in the nose, 12 cases complaining of symptoms referable to involvement of the cranial nerves.

According to the syphilologists, secondary syphilis in the nose is practically non-existant. They state all syphilitic changes in the nose are primarily gummatous. In this connection it is well to remember that the syphilologist examines the nose of the known syphilitic. In our daily practice we are frequently put to it to make a diagnosis between what we call idiopathic atrophic rhinitis and syphilitic atrophic rhinitis. In this series cases were tentatively called idiopathic—after a few treatments had sufficiently cleansed the nose the ulcerative lesion could be distinguished.

By this time the Wasserman report was back and we could promise some relief.

The gumma in the floor of the nose—the perforation of the septum, of course, are not so difficult of diagnosis. Occasionally, three in our series, cases present with sinus infection secondary to the gumma. The headache due to the blocked sinus is what brings the patient in. Fortunately, here we can so frequently make a clinical diagnosis and afford relatively prompt relief.

One approaches the question of neuro-syphilis with due caution. We have twelve cases of cranial nerve palsies. Of these three are optic atrophies and as stated previously are presumed to rest on a different pathological basis from the other cranial nerves. It seems probable that these palsies are the visible expression of an underlying meningo-vascular change, which are in essence proliferative in character, i.e., typically gummatous. One is impressed here with the fact that optic atrophies excluded, now often over a long period of time, i.e., two or four years, there is complete restoration of function. In only one of our nine cases was there a failure of restoration. This man had had a complete paralysis of the sixth for at least five years before he came under treatment. This question, of course, does not apply to the optic atrophy which is, of course, another and a sadder story.

In conclusion, two hundred cases of syphilis presenting with symptoms referable to eye, ear, nose and throat are analyzed. An attempt is made to show that these cases fall naturally into certain groups which correspond with the generally recognized and pathological picture characterizing the three phases of acquired syphilis, and to identify these groups.

DISCUSSION

Dr. V. M. Hicks (Raleigh): I wish to simply speak on one or two questions in reference to children born with syphilitic infection. I think that we ought to keep one or two things definitely in mind about this type of syphilis.

There isn't any such thing as inherited syphilis, in the first place. There is a confusion of terms in that connection. The germ cell is the only thing that transmits inheritance and of course the spirochete can be transmitted through the germ cell but is never a part of it.

The work of Lewis and others in the field of biology shows that it is impossible to transmit acquired characteristics. So that it is quite possible that you can have congenital syphilis, but not inherited syphilis.

Syphilitic infection is like all other infections. It is an accidental thing. It makes no difference whether the accident of infection occurs in the uterus or after birth.

I have had in my short experience two rather remarkable cases of congenital syphilis in which the father transmitted the infection to the child and the mother was never infected with syphilis, the spirochete

being transmitted through the spermatozoa, and the mother staying clear of the infection.

These are very rare things but they must be kept in mind when you are arriving at the real basis for the infection with the spirochete.

I think from a practical standpoint this question of syphilitic infection coming into your private practice is a tremendously important thing. I find that if I tell a patient, "I suspect that you have some blood infection and therefore I am going to take your blood with the idea of having a Wasserman done on it," there is a rather definite resentment toward the thing. But if I suspect that there may be some syphilitic infection and without any discussion of the matter just prepare the arm and take the blood, I don't find any criticism at all.

And I think we ought to be very free in doing that sort of thing. Certainly it is not injurious to take the blood, and if you send the patient back to the physician who might have referred the patient to you, there is a good deal of resentment there.

It is very easy to say, "There is a possibility that there may be some irregularity in your blood in some way or other and that is why this test is being made," without referring in any way to syphilis or the Wassermann test. In that way the matter can be taken care of very well without any resentment on the part of the patient.

I do think that we don't take enough Wasserman tests in our private offices. I think we ought to practice the thing; lots and lots of times we will find that that is what we are dealing with in a patient that we have treated for awhile and in whom we got no improvement.

Chairman Reaves: Is there any further discussion?

Dr. Frank C. Smith (Charlotte): Parsons, while discussing syphilis in his textbook of ophthalmology, says that when you think you have found an uncommon or rare disease be sure first it is not an unusual manifestation of a very common condition.

Some time ago a boy, 22, came in complaining of severe headache and failing vision. He had a right hemianopia, an intermittent second degree nystagmus, occasional attacks of nausea and a pulse rate of 50. A negative blood Wassermann was reported by his physician. A tentative diagnosis was "brain tumor" and a neurological surgeon was written to make arrangements for an operation. While waiting his reply the spinal fluid was reported four plus. Within twenty-four hours after beginning antiluetic treatment his headaches improved. His hemianopia remained despite treatment, but with an appreciable improvement in central vision.

Chairman Reaves: Is there any further discussion?

Dr. Fred Elliott Motley (Charlotte): I am glad to know that these nasal lesions with swelling of mucous membrane are not secondary lesions. I always thought they were.

One characteristic I have found in those nasal mucous membrane swellings is that you can't reduce them even with strong solutions of cocaine

and adrenalin. The nose will remain engorged, and the patient after a few attempts at shrinking begins to think your medicines are not very efficacious.

I have grown very suspicious of any markedly engorged mucous membrane of the nose that will not shrink with strong solutions of cocaine and adrenalin.

It was very interesting to me to hear the report of the Herxheimer's reaction. I have never seen one of them. I have been on the lookout for that sort of thing and try to guard against it in those cases with auditory nerve deafness due to syphilis where I have advised treatment.

I can think of about a half dozen cases that have had a very sudden loss of hearing which was found to be luetic but the result has been in most of them rather happy, with prompt treatment and treatment carried out over a long period of time.

I did see one Herxheimer reaction. It was a case of laryngeal syphilis, gumma, and it necessitated tracheotomy. It was a rather drastic affair. The patient did finally recover. But I remember it very well.

Chairman Reaves: Is there any further discussion?

Dr. A. C. McCall (Asheville): I am sorry I didn't hear the first part of the paper but I heard Dr. Smith report his case.

I have a case now under treatment of a gumma of the cella tersica with destruction of both the clinoid processes, according to the X-ray report, and loss of one eye. When she came to us—she is twenty-six years old and married; she had been married about three years—she told us that she had had one miscarriage. During the process she lost one eye due to choking of the disc. There was a question there before we got a positive Wasserman, because it was a second test before we got a positive Wasserman, but we are happy to say now that one eye is perfectly normal. The other eye is hopelessly lost, but she is recovering. She has a hyperopia of four diopters, which threw us off at the very first, and she is under the urologist now. She has been getting treatment now for seven months and the last X-ray showed a decided contraction of the tumor in the cella tersica.

Chairman Reaves: If there is no further discussion I will ask Dr. Anderson to close.

Dr. Wm. Banks Anderson (Durham): With reference to Dr. Hicks' comment on approaching the family, in connection with the boy that I mentioned as my first case of interstitial keratitis, I took Wassermanns on his mother and father and they were negative. A series of them were taken. His father was tremendously concerned, of course, for the boy, and I believe that he would have given me a correct history but he had no idea of just where the disease was occurring. Being interstitial keratitis, I presumed that it was congenital.

With reference to referring them back to the family physician, I was very much interested in this series of cases so I tried to check up on them

to find out just what happened to them. There were two hundred and some cases. I only analyzed two hundred. I was able to get, by referring to the clinical records at Duke Hospital and Watts Hospital and by writing to some of the general practitioners an idea of what happened to about one hundred forty. Of these one hundred forty only seven have at the present time negative Wassermanns. Forty-nine are still under treatment. The others went elsewhere, if they wanted treatment; anyway, they didn't go back to the family physician who sent them to me.

Dr. Motley's point as regards mucous membrane not shrinking I think is a splendid diagnostic point. Of course, that is a very common observation, but I have failed to put the necessary emphasis upon it.

CHAIRMAN REAVES: The next paper is "Mastoiditis," by Dr. J. S. Norman, of Hickory.

MASTOIDITIS

By DR. J. S. NORMAN, Hickory

The object of this paper is to present the difference between the local, physical, pathological and etiological signs of infection of the mastoid by streptococcus hemolyticus and the other pathogenic organisms such as staphlococcus aureus, albus, pneumococcus and the influenza group. I will not discuss mastoiditis caused by, or found as a complication of, tuberculosis, diabetes, scarlet fever or measles.

Mastoiditis caused by the hemolytic streptococcus is considered, usually, a strictly surgical mastoid in point of attack, while a mastoiditis caused by organisms of the other group are observative, in that we have a certain amount of time for preparation, treatment and some definite symptoms on which to base our preparations. The invasion of the middle ear and mastoid cells by the different organisms differ distinctly. The character of the X-ray plate is decidedly contrasting. It is not so much the technique of how you take the plate or the position in which it is taken but the object is to get a good picture of the bone involved. This may be left to the opinion of the X-ray technician. At this time I wish to say that in my opinion it is always best to take an X-ray of any painful ear whenever the drum is red or bulging and you have pain, temperature and a leucocytosis. I don't know of any procedure, with the mentioned symptoms, that will give us more light in a diagnosis.

It has been said by some surgeons, that given a full line of clinical symptoms, an X-ray is unnecessary. I cannot agree or see their point of argument. It is always best to use an X-ray in an unknown fracture, and if this is true, then why neglect its use in so dangerous a territory as the mastoids?

In mastoiditis caused by the streptococcus hemolyticus we have rapid dissemination of the infection by way of the blood vessels through the bone to the lateral sinus and venous channels and general circulation of the jugular vein and circular sinus to the brain substance and adjoining

territory. The rapid affinity this organism has for the red blood cells produces an early anemia and hemolysis so that we may find a red blood count as low as two million or even less. The increase in white cells is not anything like the high count caused by the other organisms previously mentioned and this fact is a very important point to bear in mind in making a differential diagosis.

In the other group, which for convenience I have called the pus group, we have the involvement of the mastoid cells by a coalescent process or cell association, which is demonstrated by a picket temperature chart, the up and down, in contrast to the temperature chart of the hemolytic mastoid which is more wave-like. The organisms of the pus group destroy bone cells while the hemolytic streptococci penetrate rapidly through the blood vessels of the bone and invade the lateral sinus producing grave toxemia and forming a clot or thrombus in the sinus. Usually this is nature's attempt to limit the infection. The bone covering the lateral sinus shows granulation tissue in the pus group, whereas the lateral sinus plate in the hemolytic type does not demonstrate so much pathology.

The drum of a hemolytic mastoid is usually very red and there is not much sagging of the posterior superior wall or roof of the bony canal, differing from the other mastoids which may show a drum pinkish red, bulging and with more marked sagging of the posterior superior wall. In a mastoiditis caused by the hemolytic streptococci the drum shows blister-like blebs which may also be found in the adjacent ear-canal. The pus group does not show blebs on the drum or the ear-canal as a rule but present other signs of mastoid involvement. The pneumococcus sometimes shows blebs.

Another important point for diagnosis is the puncture culture from the drum. In this way we can often identify the offending organism at once. Also a early blood stream culture should be made.

The X-ray plate in the hemolytic mastoid shows no cell change. It has a sneaking pathology and gives you no time for much consideration. In the pus group there is seen a gradual progression of cell destruction. You are given some time for observation and consideration of treatment. In the hemolytic strep type the invasion of bone is by way of blood vessels while in the pus group it is by way of coalescence or breaking down of the mastoid cells. In the hemolytic type there is not much pain due to pressure in the venous channels in the bone and around the ear. In the majority of the pus group there is much pain, severe headache and sensitiveness to pressure. In these cases the pain is usually relieved by tympanotomy.

In the hemolytic mastoid the patient is "knocked out." He shows a lackadaisical appearance. He apparently "don't care." In the other group the patient is very anxious, delirious, nauseated, perhaps vomits, may show a diarrhea and there is noted in the region of the mastoid, swelling, redness and protrusion of the ear from the side of the head.

Blood culture, in the staph hemolytic mastoid, is nearly always positive early in the infection. In the other group the organisms show up considerably later according to the time of infection.

It might be well to review the complications most likely to occur with each type of organism under consideration so that having made a possible diagnosis of the causative organisms and knowing their, or its, characteristics, pathology and the usual fatality of each, we may be prepared to act accordingly. I might say that many babies die of a supposed enteritis that had its origin in a mastoid infection. Rapid in onset, usually terminating fatally. I think it is a good plan to culture the fluid from a tympanotomy, or make a stain, in all cases of enteritis and see if the streptococcus hemolyticus is not the direct cause of the trouble. This investigation, however, is still in the hands of our pediatricians and much is expected of them. This is merely mentioned in passing.

A brief summary of some of the important points in differential diagnosis and the usual complications follows:

A. The strep. hemolytic mastoid is a surgical mastoid on account of its productive anemia and grave complications. (Rapid Hemolysis.)

1. The drum not always sagging as this is a rapid process.
2. Blebs on the drum and in the ear canal.
3. Tympanotomy shows the strep. hemolyticus.
4. Rapid fall of red blood cell count and hemoglobin and a leucopenia.
5. Not much pathology in the X-Ray plate.
6. Infection by way of veins in the mastoid cells.
7. Not much pain due to pressure in venous channels in bone.
8. Patient shocked and "knocked out" in appearance.
9. Blood culture shows the streptococcus hemolyticus early.

A. The surgical mastoid questionable of the other group. Why? Because this group of organisms allow us time for observation and preparation.

1. The drum not so red; of a pinkish color. Later on beginning sagging of the posterior superior wall.
2. Blebs not often seen in this class of cases.
3. Culture from tympanotomy shows Staphlococcus, pneumococcus, etc.
4. Leucocytosis usually ten to twenty-five thousand.
5. Progressive extension or invasion of bone in X-Ray plate.
6. Infection by breaking down of mastoid cells.
7. Severe pain, headache, very sensitive to pressure.
8. Patient has a very anxious appearance, delirious, nausea, vomiting, and diarrhoea (in young) and there are more signs of mastoid involvement around the ear posterially.
9. Early blood culture dooes not show the organisms.

COMPLICATIONS

1. The strep hemolytic. Pneumonia, endocarditis, leptomeningitis which usually produces death in 24 to 36 hours.
2. Lymphatics are not so much involved.
3. More common in children.
4. The use of serum and vaccine is questionable.
5. Also make a smear and Culture at time of operation from mastoid.

1. The other group. Sinus thrombosis, brain abscess, fatality is usually later. Better chance for recovery after operation.
2. Lymphatics are involved more extensively.
3. More common in adults.
4. Serum and vaccine has been reported to do some good in these cases.
5. Same done here in this group.

A FEW POINTS ON DRESSING AFTER OPERATION

1. Following operation, wide-open wounds with dressing, no sutures. Moist dressings, Dakin solution, mercurochrome, boric acid solution, magnesium sulphate solution, and dilute alcohol.
1. Following operation dress with gauze wicks, partial closure of surgical wound with clips or sutures.

Chairman Reaves: Dr. Norman's paper is now open for discussion? Do you care to discuss it, Dr. Motley?

Dr. Fred Elliott Motley (Charlotte): I hesitate in some ways to discuss this paper because I disagree to a certain extent with a great many of the statements of Dr. Norman.

The hemolytic streptococcus I feel varies a great deal in the severity with which it attacks different individuals.

I feel, regardless of the type of organism, we are not justified in going directly into any mastoid infection. We have got to be guided by clinical signs every time, regardless of our bacteriology. I think that should guide us at any time.

X-ray is a valuable help. I don't feel that it is a necessity. When there is a question regarding your diagnosis of mastoiditis I think X-ray should help you and it will help you in regard to anatomy but it is not an absolute necessity. One should be able to do a mastoid without an X-ray, and they were done before we had X-rays, I understand.

I don't think the hemolytic streptococcus invariably causes thrombosis or blood-stream infection. In fact, I am sure it doesn't. It does at times. It is one of our most dreaded organisms, that is true, but it doesn't necessarily cause these dreaded complications every time.

I think the organisms most frequently causing blebs on the drum is the bacillus influenza. Any of you who went through the war epidemic of "flu" and looked at eardrums at that time will remember the great number of drums that showed blebs and hemorrhagic blisters.

I think among the pus group, as Dr. Norman classifies it, the pneumococcus is every bit as serious an organism (as far as we want to classify mastoiditis according to its bacteriology) as the streptococcus hemyliticus.

I should like to ask Dr. Norman in connection with his second case what his indications were for operation and whether or not, being of twelve years' duration, a radical mastoid was indicated at that time.

Thank you.

Chairman Reaves: I should like to say that Dr. Key has some very fine slides here that a number of the men will want to see, so just as soon as we elect the officers, if you care to stay, you may see them.

Nominations are open for chairman of this Section.

. . . Dr. Henry L. Sloan nominated Dr. Vance P. Perry, Kinston, and he was elected unanimously . . .

CHAIRMAN PERRY: Gentleman, I appreciate this honor. If I had the clarity of expression that Dr. Key exhibited here this afternoon I might be able to tell you how much I appreciate it. But I assure you my appreciation is just as deep as his knowledge of ophthalmology.

Nominations are now in order for the office of Secretary.

. . . Dr. B. W. Fassett, Durham, was unanimously elected . . .

Has anyone any business that he wants to bring up briefly now? We are all anxious to see Dr. Key's slides. Is there any unfinished business to come before the Section? If not, we will have Dr. Key's slides now.

. . . The meeting adjourned at five-fifty o'clock . . .

SECTION ON GYNECOLOGY AND OBSTETRICS

WEDNESDAY, APRIL 19, 1933

The Section convened at 2:15 P. M., in the Manteo Room of the Hotel Sir Walter, Raleigh, N. C., Dr. Richard W. Spicer presiding.

CHAIRMAN SPICER: The meeting will please come to order. To begin the program, I have a paper on "External Versions."

EXTERNAL VERSIONS
(Chairman's Address)

By RICHARD W. SPICER, Winston-Salem

External versions is a procedure upon which all practitioners doing obstetrics do not agree. But when we watch statistics year after year of various hospitals or individuals we are bound to admit the average man doing obstetrics will get better results if he had fewer breech presentations.

In one man's series his fetal mortality was as low as 2.3%, but all of us can not expect to reach this figure. A few figures will give some idea of the range of mortality in different parts of the country. Hegar, in the country districts of France, shows a mortality of 40%. Irwin and Goethals over a period of 14 years at Boston Lying-In, had 12.7% in primapara and 7.8% in multipara. McPherson showed 9.4%. Mathews, in a series of breeches and 22 versions at the Methodist Episcopal Hospital, 12.1%. From a smaller series at the Long Island College Hospital, 15.2%. It has been shown that fetal mortality in 75% of these cases is due to trauma rather than just pressure on the cord due to delay in delivering the after-coming head, and attributing the death to just asphyxia.

Holland found that 88% of the dead fetuses in cases of primary uncomplicated breech deliveries had tears in the tentorium.

Brown in summing up the causative factors of death in 153 new-borns, says: "If we take 35% as the normal frequency of breech deliveries, it is found that the latter is ten times as likely to give rise to cerebral hemorrhage as delivery by the vertex.

Together with the trauma in these cases is the danger of prolapsed cord, which is far more likely to occur than in cephalic presentation due to the early rupture of membranes, oftentimes long before labor pains have started, and this adds to the distress and length of labor and calls for more digital examinations than otherwise to detect this condition if it does occur. There are always dangers in this type of case, if one is not very careful, of getting a hemorrhage in the adrenals, in grasping or making traction on the body of the child. Post-mortems reveal this far more frequently than one would think. Angulations and twisting, nerve palsies,

fracturing of the clavicle and humerus, are all complications that we have to be watchful for in this type of delivery.

The harmful effects of this delivery do not stop with the child. If a hurried delivery is necesary on account of prolapsed cord, and the soft parts are not prepared, the mother pays dearly oftimes and it is very hard to measure the actual damage done at the time. Extended arms or nuchal hitch should also make us desire a vertex presentation. With a breech presenting we cannot give the patient the proper test of labor, and naturally cannot by pressure determine whether the head will fit in the superior strait. Prolonged rupture of the membranes, with its effect of potentially infecting the uterine cavity, diminishes our desire to do a Cesarian when the child fails to come through.

The discomfort to which it subjects these patients, by having to contend with a head pressing on the fundus in the region of the epigastrium is enough in itself to justify a change in position, or external version.

By routinely examining patients during the pre-natal period, say every two weeks, up to the seventh month and once a week thereafter, I believe it will be a rare occurrence when a breech presentation will come to delivery without being detected, although Studdervant claims they either missed diagnosing 50% of their cases or a big percentage of them turned before delivery.

Having decided on the position, and that an external version is the best thing to do for the welfare of the child and mother, the procedure should be carried out with the utmost gentleness. By explaining what you wish to do, most mothers are able to co-operate by relaxing enough to change the position without very much trouble. On the other hand if you have a very sensitive patient or one who fears any manipulation is going to be injurious to her child or one where the breech has sunken rather deeply into the brim of the pelvis, or where the legs are extended beside the head, or the liquor amnii has diminished in comparison with the size of the fetus, then the manipulations are going to be more difficult. In cases of this kind it is better to elevate the hips with the hope that you may dislodge the buttocks above the brim and thereby making it unnecessary to push the lower extremity up and to one side by internal force. It is of comfort to the patient to apply liquid albolene or powder to the abdomen, because at best the abdominal muscles are tender following a version. I like to use the heel of the hand, standing on the right side of the patient, and press downward between the symphysis and buttocks and push the buttocks in the direction of the back, at the same time pulling the head when possible in the opposite direction, thereby increasing flexion all the time. The reverse order or extension not only makes the version almost impossible but it is very hard on the fetus. If for various reasons it is not completed in a reasonable length of time it is best to let the patient return at a later date for a check-up. When it is often found it has corrected the position of its own efforts after once being dislodged

and started in the right direction. After correcting this position the patient notices a marked difference in the absence of discomfort when first standing up.

After a second attempt, and failing, it is best to give the patient an anesthetic to get complete relaxation and then the baby can be manipulated very easily, or as a rule you will find definitely then that it might not be best to persist. I have in mind now a case with a border-line pelvis, that I did not feel I could get a live baby delivering her as a breech, but was willing to take a chance on a test of labor and the head moulding sufficiently to come through with possibly some help. But after getting her anesthetized it seemed to me that there was too much tension inside the uterus as the version reached almost a transverse position. So I did not go on through with it but allowed it to return to its original breech position and did a Cesarian at term, with good results for both mother and child, which was a most doubtful outcome in either of the other two procedures. She had a very small amount of fluid and I believe would have gotten a ruptured uterus if I had persisted in turning it. These cases should be converted to a vertex preferably about the thirty-second week. Up to this time the liquor amnii has reached the height of its accumulation and from this time on begins to diminish, whereas the fetus doubles its weight from this time on, and therefore is more likely to keep this new position when once placed. Cases of hydraminos it is useless to turn; also twin pregnancies should be let alone.

I have been doing routine external versions for the past five years and have seen no reason for not doing them. There have been no immediate ruptures of membranes, hemorrhage from disturbed placenta nor prolapsed cords.

The infants at birth and in a follow-up so far as I was able to do so, have shown no untoward effects.

The incidence of premature rupture of membranes at the time of labor were no more than were in cases on whom this had not been done.

Since statistics show that the lowest mortality in breech deliveries is higher than those in cephalic presentation, including those cases in which the fetuses have been turned, I think we should watch our cases and correct these breech presentations when found, if possible to do so.

Chairman Spicer: At this time I would like to appoint a Committee on the Moore County Award—Dr. Hamlin, Dr. Proctor, and Dr. Ransom. I would also like to appoint a Committee on Selection of Chairman for the next year—Dr. Moore, Dr. Nalle and Dr. Ross.

The next paper on the program is by Dr. Thomas L. Lee of Kinston on "Calcium Metabolism in Pregnancy."

CALCIUM METABOLISM IN PREGNANCY

By Thomas Leslie Lee, M.D., Kinston, N. C.

Calcium metabolism has been the subject of much investigation during the past decade. Mull and Bill[1] found the blood calcium during pregnancy to range from 9-11 mg. per 100 cc. of blood. All investigators agree there is a diminution of the blood calcium during the latter months of pregnancy. Calcium exists in the organism in two states. Diffusible and non-diffusible. The diffusible portion is that portion capable of passing through a permeable membrane and represented by that found in the cerebro-spinal fluid. Cantarow[2] found the diffusible portion to range from 4.5 to 5.5 mg. per 100 cc. or approximately 50% the total calcium. The non-diffusible portion is that not capable of passing through permeable membranes, being bound in some way to the plasma proteins, the value for the non-diffusible portion averages 4.7 to 5.75 mg. per 100 cc. Cantarow, Montgomery and Bolton[3] have shown a definite decrease in the ratio of the diffusible to non-diffusible calcium in the toxemias indicating a decrease cellular permeability in these conditions. Gordon et al[4] report remarkable results in edema with calcium levulinate, one patient losing 500 cc. of fluid. No determination of calcium on the serum or spinal fluid are given. Dupre[5] reports a variation of from 1 to 1.5 mg. in the serum calcium during the day. The evening calcium was higher due to the calcium ingested during the day. McLester[6] reports a marked synergistic action between iron and calcium. If there is an abundant supply of calcium, iron equilibrium is maintained on an appreciable smaller quantity of iron. Meltzer and Auer quoted by McLester state that calcium inhibits the deleterious effects on sodium, magnesium and potassium.

PHARMACOLOGY

The pharmacologic properties of calcium namely: 1. Coagulability increasing. 2. Hypotensive. 3. Anti-inflammatory. 4. Permeability-reducing, and 5. Neuro-muscular sedative make it of prime importance to the organism. Especially is calcium important from a pharmacologic standpoint during pregnancy. Each pharmacologic property being vitally concerned for the well being of the pregnant woman.

UTILIZATION OF CALCIUM

The normal adult requires from .7 to 1 gm. of calcium per day to remain in calcium equilibrium. McLester states that the American diet is more likely to be deficient in calcium than any other element. The supply of calcium for the body is obtainable chiefly from vegetables, fruits, milk and eggs. Calcium is absorbed chiefly from the upper portion of the small intestine. Absorption is dependent upon many factors, chiefly the hydrogen iron concentration and the amount of phosphate present. Alkalinity greatly decreases and acidity greatly increases absorption from the intestines.

The rôle of vitamin D in calcium metabolism is not well understood. Its good effect is probably exerted either through increasing the absorbability in the upper intestinal tract or some influence on the intermediary metabolism of calcium.

The parathyroid gland also has a significant action on calcium metabolism. The mechanism is not understood but is dependent upon an adequate supply of vitamin D.

Calcium is excreted in the urine and feces, the former containing from 10-30% and the latter 70-90% of the daily output.

The normal storehouse of calcium is the skeleton. Very little is found in the soft tissues. The storage of calcium in the skeleton may be likened unto the storage of glycogen in the liver. During pregnancy due to the developing fetus there is an increased demand on the mother for calcium. If calcium equilibrium is not maintained during this period the maternal storehouse will be depleted with its consequent effects just as the liver is depleted of glycogen in various diseased states.

SYMPTOMS OF CALCIUM DEFICIENCY

Hartley[7] has described a group of symptoms occurring in the pregnant woman which are not unlike those of Tetany and to which he has given the name of "Tetanoid Syndrome." The syndrome includes "1. Aching pains in the legs and thighs. 2. Irritability of disposition unusual to patient. 3. Insomnia. 4. Edema not associated with cardiac or nephritic pathology. 5. Paresthesias of hands and feet." To these may be added to the well known effect of pregnancy upon the maternal teeth.

OBSERVATIONS

Since March 1932 each prenatal patient presenting any of the above complaints has been subjected to blood calcium determinations. The results of the determinations are shown in table I.

This series does not represent routine determinations. An effort was made to select those cases with hypocalcemia at some time during the prenatal period. The records of 103 consecutive prenatal patients were reviewed. Thirty-one patients or 30% complained of one or more of the symptoms mentioned. The symptomatic diagnosis of hypocalcemia was serologically confirmed in twenty-five or 83% of the patients. The symptoms in order of their frequency were: cramps in legs and thighs 24, edema without evidence of cardiac or nephritic pathology 9, unusual irritability 8, insomnia 7, and paresthesias in 5. Hartley in his monograph describes the above symptoms in detail. Six of the selected patients presented tetanoid symptoms with normal blood calcium. This result may be accounted for by the fact that not only is calcium metabolism concerned, but mineral metabolism in generally especially phosphorous. Vitamin D deficiency also plays a rôle in the production of these symptoms.

The 103 patients are about equally divided among the urban and rural population and among the well-to-do and poorer classes. Hypocalcemia was just as frequent among the rural as among the urban and among the well-to-do as among the poor. This fact proves that a marked dietary dyscrasia exists among the entire population.

In table II the hypocalcemic patients are divided according to the period of pregnancy during which the determinations were made. During the first trimester there were 5 patients with an average of 7.2 mg. of calcium per 100 cc. In the second trimester, which is the largest group, there were 17 patients with an average reading of 7.7 mg. per 100 cc. In the third trimester, during which there is a physiological diminution in the blood calcium, there were 9 patients with an average of 7.5 mg. per 100 cc. The average for the entire series was 7.4 mg. per 100 cc.

The determinations were all made by the same individual using the Clark Collip[8] method for serum calcium determination. The method depends upon the precipitation of calcium as calcium oxalate. The calcium oxalate is determined by titrating the oxalic acid liberated by an acid with a standard permanganate solution.

As mentioned earlier it has been generally observed that the calcium content of serum diminishes during the latter months of pregnancy. The determinations herein quoted are in agreement. In addition a series of patients are presented with definite calcium deficiency occurring as early as two months, the larger group occurring 3-6 months. Twenty-five or 24% of the 103 prenatal patients showed definite hypocalcemia sometime during the prenatal period. These results indicate that hypocalcemia at any time during the prenatal period is not infrequent. It behooves us, therefore, to pay closer attention to nutrition during the prenatal period that the maternal stores of calcium may not be depleted.

CALCIUM DEFICIENCY AND ANEMIA

The observations on the blood counts and hemoglobin estimates of these patients are of particular interest. From table I it will be seen that all cases presented practically identical findings in the blood counts, namely, marked reduction in the red cell count and hemoglobin estimation. The presence of this degree of anemia accounts for the weakness and shortness of breath complained of by many students. The average red cell count for the series was 3,317,800 and the average hemoglobin estimation was 65%. Four patients of the series had hookworm infestation and two had hypochlorhydria. The majority of the anemias would be classed as the so-called physiologic anemia of pregnancy.

That calcium and iron have marked synergistic action is well borne out in this series of patients. Upon the withdrawal of maternal calcium on the part of the fetus and the consequent calcium deficiency due either to faulty metabolism or insufficient quantities of calcium in the food, much larger quantities of iron are required to maintain iron equilibrium. If

there is a negative iron balance or if the iron is not in such a state as to be utilized in the formation of hemoglobin, the hemoglobin estimate will be low. It may also be asumed that such mineral imbalance may exert some effect on the bone marrow, thus causing a diminished number of red cells to be formed. Castle and Strauss [9] in studying a group of normal pregnant women found hypochlorhydria in more than half sometime during pregnancy. Since calcium is absorbed in acid medium, with hypochlorhydria less calcium is absorbed with its consequent effect on hemoglobin formation.

Is the so-called secondary physiologic anemia of pregnancy a misnomer? Taking the blood calcium estimation as a criterion by which to judge nutrition it is easily seen that probably a much more descriptive term would be nutritional anemia. The diets of these patients was known to be deficient in many elements, especially minerals and vitamins. The constancy of the red cell, hemoglobin and calcium finding may become of fundamental importance. The observations upon the patients in this series certainly suggests an important relation between the so frequent secondary anemias of pregnancy, hypocalcemia and malnutrition.

Experience leads me to believe that the so-called pernicious like anemia of pregnancy and the puerperium may be a nutritional anemia, differing more in degree than in type from the secondary anemia.

TREATMENT AND RESULTS

All patients have been instructed to eat a diet containing large quantities of vegetables, fruits and eggs. One quart of milk per day is advised. In addition calcium gluconate and viosterol are given until symptoms disappear. The patients are advised to take viosterol during the remainder of their pregnancy. Lieberman[10] has shown that calcium administered after meals is better absorbed and gives less alimentary distress. Calcium gluconate powder is given in one dram doses three times daily after meals. Viosterol is given in 6 minim doses three times daily before meals. Results have been prompt and uniform. The tetanoid symptoms have been relieved in from 3 days to one week. The more marked the hypocalcemia the more rapid was the improvement. In many cases where the blood calcium has been checked after therapy it has been found from 1-3 mg. higher.

Parathormone was used in two instances (G.C., O.B.) to allay the severe cramps in the legs and thighs. The results were prompt.

The red cell and hemoglobin response has not been so marked, though in most instances improvement was noted. Where the result was not satisfactory from 80-100 grains of iron per day have been administered with satisfactory results. No appreciable effect has been noted upon the character of the labor except the patients come to delivery in much better general condition. No marked effect was noted on the third stage, the amount of blood lost averaging about the same as those with normal cal-

cium. There is some evidence of increased lactation as more mothers were able to nurse their babies.

In an effort to determine any effect of either hypocalcemia or calcium therapy upon the skeleton of the baby several babies of mothers in the series were subjected to X-ray examinations of the long bones. The results were negative. This is in agreement with Booher and Hansemann[11] who found no variation in the calcium content of the ash of tibias of infants from mothers in all states of nutrition. In one instance (O.B. serum calcium 5 mg.) my associate pediatrician[12] reports symptoms of tetany occurring in the infant 4 weeks post partum. The blood calcium on sinus blood of the infant was 7.2 mg. per 100 cc. The symptoms improved with calcium gluconate intramuscularly.

In conclusion I wish to call attention to a recent case not included in this series.

A para 5, 22 years old, was referred for pruritis vulvae. She was in the fifth month of pregnancy. For the past month and a half had complained of intense itching around the vulva. On examination the vulva was found swollen and excoriated from scratching. No discharge was noted from the cervix or vagina. No evidence of toxemia was present. Had been treated past month with salves and lotions with no relief. The blood calcium was 8 mg. per 100 cc. She was given calcium gluconate 15½ grains intramuscularly every other day for three days. At the end of this time there was no itching and the vulva was healing. She was advised to remain on calcium gluconate and viosterol for the remainder of her pregnancy.

CONCLUSIONS

1. Thirty-one per cent of 103 consecutive prenatal patients showed symptoms of hypocalcemia. The symptomatic diagnosis was confirmed serologically in 83%.
2. Hypocalcemia is not infrequent at any period of pregnancy.
3. The results of Hartley are confirmed.
4. A definite relation exists between hypocalcemia and anemia.
5. No effect was noted upon the character of labor.
6. Treatment with calcium gluconate, viosterol and iron produced results.
7. Beneficial results were obtained in one case of pruritis vulvae.

My thanks are due Miss Mildred C. Ringle, R. I., technician Memorial General Hospital, for her interest and careful work in making the calcium determinations.

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TABLE I

No.	Case para	Para	Period of Preg.	Serum Calcium	Red Blood Corpuscles	Hemoglobin	Remarks
1	JKR	VIII	6	7 mg.	2,050,000	60%	Cramps in legs and thighs, edema feet and ankles, irritable and general weakness.
2	OC	II	7	6 mg.	2,650,000	60%	Severe cramps in legs and thighs, relieved by Parathormone, two children in 24 months.
3	JA	IV	4	8 mg.	3,500,000	70%	Irritable, insomnia, pubic pain, general weakness.
4	OB	III	2	8 mg.	3,800,000	65%	Cramps in legs and thighs, irritable, general weakness, delivered 5 months before.
5	JS	V	3½	5 mg.	3,810,000	67%	General weakness, severe cramps in legs and thighs, hypo-chromic anemia last preg. Wass. 4 plus.
6	FHH	II	5	7 mg.	3,325,000	63%	Cramps in legs and thighs, general weakness, easily fatigued.
7	CHK	III	8½	4.3 mg.	2,010,000	51%	Edema feet and ankles, cramps in legs and thighs, severe weakness, shortness of breath, teeth decaying.
8	JS	II	3½	9.2 mg.	3,650,000	65%	Cramps in legs and thighs, paresthesias hands and feet, insomnia.
9	GT	I	4	7 mg.	3,460,000	65%	Edema feet and ankles, general weakness, blood pressure and kidneys normal.
10	GL	I	3	7.5 mg.	3,650,000	68%	General weakness, shortness of breath, insomnia, irritable, cramps in legs and thighs.
11	CMT	I	5½	8.2 mg.	3,400,000	62%	Cramps in legs and thighs, fatigueability.
12	JFO	I	6	8 mg.	3,150,000	62%	Cramps in legs and thighs, general weakness, insomnia.
13	WLM	III	8	7.5 mg.	3,000,000	58%	General weakness, cramps in legs and thighs, paresthesias, teeth decaying.
14	WBH	III	6	9.2 mg.	4,000,000	75%	General weakness, irritable, fatigueability, improved on calcium gluconate and viosterol.
15	JCF	I	3	8 mg.	3,530,000	65%	General weakness, fatigueability, cramps in egs and thighs, post partum hemorrhage.
16	OB	III	2	5 mg.	3,000,000	65%	Severe cramps in legs and thighs, relieved 45 min. parathormone, last delivery 5 months ago.
17	DCC	IX	7	6.5 mg.	2,680,000	57%	General weakness, in bed three months with last pregnancy, post partum hemorrhage.
18	HH	V	5	5 mg.	3,200,000	63%	5 Pregnancies (term) in 5 years, complained of general weakness, edema and paresthesias.
19	MB	II	7	7.8 mg.	2,010,000	55%	General weakness, edema feet and ankles, blood pressure and kidneys normal.
20	EB	II	6	7.4 mg.	3,410,000	68%	General weakness, irritable, cramps in legs and thighs.
21	BS	I	7	7.2 mg.	2,650,000	58%	Cramps in legs and thighs, edema feet and ankles, blood pressure and kidneys normal.
22	WG	I	6	8.5 mg.	3,400,000	69%	Dysmenorrhea at puberty, cramps in legs and thighs, edema, insomnia.
23	ALF	IV	2	8.5 mg.	3,570,000	70%	Cramps in legs and thighs, irritable, insomnia, edema.
24	FH	I	4½	6.8 mg.	4,000,000	72%	Cramps in legs and thighs, fatigueability.
25	LP	I	8	7.2 mg.	3,200,000	62%	Cramps in legs and thighs, toxic, blood, pressure 183/100, urine faint trace albumin.
26	CF	IV	6	6 mg.	3,280,000	68%	Dysmenorrhea at puberty, cramps in legs and thighs, insomnia.
27	HS	II	5	11 mg.	4,300,000	78%	Cramps in legs and thighs, edema hands, paresthesias, hands and feet.
28	PP	III	6	7.8 mg.	3,400,000	65%	Cramps in legs and thighs, paresthesias, edema of hands.
29	OB	I	8	10 mg.	3,920,000	70%	Edema of hands, cramps in legs and thighs.
30	RHMc	II	6½	11 mg.	3,800,000	72%	General weakness, cramps in legs and thighs.
31	WHW	I	4	9.5 mg.	4,000,000	75%	Edema feet and ankles, cramps in legs and thighs, irritability and weakness.

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TABLE II

FIRST TRIMESTER		SECOND TRIMESTER		THIRD TRIMESTER	
Case	Mg. Cal.	Case	Mg. Cal.	Case	Mg. Cal.
G.B.	8	J.K.R.	7	G.C.	6
G.L.	7.5	J.A.	8	C.H.K.	4.3
J.C.F.	8	J.S.	5	W.L.M.	7.5
O.B.	5	F.H.H.	7	D.C.C.	6.5
A.L.F.	8.5	J.S.	9.5	M.B.	7.8
		G.T.	7	B.S.	7.2
		G.M.T.	8.2	L.P.	7.2
		J.F.O.	8	R.B.	10
		W.B.H.	9.5	R.H.Mc.	11
		H.H.	5		
		E.R.	7.4		
		W.G.	8.5		
		F.H.	6.8		
		C.F.	6		
		H.S.	11		
		F.P.	7.9		
		W.G.W.	9.5		
Average	7.2		7.7		7.5
Average for series.....7.4 mg. per 100 cc.					

DISCUSSION

Dr. I. H. Manning (Chapel Hill): I have no doubt that many of you know that I do not know anything in the world about obstetrics, and less about gynecology. When Dr. Lee asked me if I would discuss his paper, I followed a rule that I tried to establish some years ago, of never refusing to do anything a doctor asked me to do, if I could.

I think, of course, that physicians who are constantly dealing with illness do not appreciate the things that appeal to the physiologist who spends his time on normal persons. More than anything we marvel at are the many balanced mechanisms in the body. And one of the balanced-

mechanisms that we wonder at particularly, I think, is the details of the structure of the blood. Particularly is this true of calcium, as Dr. Lee has said, in the normal person, the amount of calcium in the blood is quite constantly around 10 milligrams to the 100 cc., which means about a sixth of a grain to every three ounces. As mild as lime is you would not suppose it would make any difference whether the balance is always maintained or not; more or less would not make any difference. And yet there is in the normal person almost a constant balance. And this balance is not affected substantially by a low or high calcium diet in the normal person. Even in starvation it is maintained at the normal level until edema develops and then it seems to decrease as the proteins of the blood decrease. And as you remember, we attribute this edema to the loss of blood protein. We see a somewhat similar condition in nephrosis where there is a loss of blood protein in the urine and at the same time a decrease in calcium, but this affects particularly, I believe, the indiffusable calcium—the supposedly inactive calcium that is combined with the proteins, and that apparently has no special clinical significance.

Now, the particular thing that keeps the calcium level normal in the normal person, so far as we can see, is the parathyroid hormone. The parathyroid hormone seems to control the balance of calcium in the plasma. And presumably it increases the solubility of the calcium and the diffusable fraction. As you know, in hyperparathyroidism, there is also hypercalcemia, that may reach 18 or 20 milligrams to the 100 cc. On the other hand, in hypoparathyroidism there is also a hypocalcemia running down to as low as 5 milligrams to the 100 cc., at which point tetany develops.

In spite of all this, there are times apparently when this balancing machinery breaks down, and those times are associated rather closely with pregnancy and lactation, with rickets, with osteomalacia.

Dr. Maxwell, for example, reports some forty or fifty thousand cases of osteomalacia in northern China, and he says that it is not only among the women but also among the men and among the lower animals. He attributes the prevalence of this condition in northern China to dietetic deficiencies, particularly of the vitamins and the lack of sunshine. He has proven, I think, clinically at any rate, that the remedy for this condition is more calcium in the diet and sunshine, or vitamin D in some of the several forms. The same is true of rickets.

Now it appears that vitamin D will increase the absorption of calcium from the alimentary canal. And we may have these conditions resulting from a lack of calcium in the diet—calcium starvation or lack of calcium absorption or the lack of the activator of calcium.

It is just a little surprising that we find in the later months of pregnancy, so frequently as Dr. Lee reports, a low blood calcium. In thinking it over, it occurs to me that this balance in the blood is so carefully protected that it would not be a particularly good test for the condition—the clinical conditions in which there are known to be imbalances in

calcium metabolism. But it has been demonstrated I think clearly that there are many instances of calcium imbalance in the pregnant woman and in the period of lactation, and this has been shown not so much on the mother as on the child, although it is an old saying that the mother loses a tooth for a child. That means, of course, that the calcium of her teeth has been drawn on to supply the child, the child having the first right apparently.

Dr. Mellanby of London, and his wife, have shown rather conclusively that a dietetic deficiency, or more particularly the lack of vitamin D in young puppies and even pregnant dogs, will result in imperfect calcification of the teeth—imperfect calcification which might not show itself except in the early caries. And he thinks that much of the caries occurring among the children—especially the school children, in England—is the result of a lack of this vitamin D, or the result of the lack of calcium balance in the early stages of the tooth formation, in the odontoblast, and those cells that have ultimately to do with the formation of the dentine and the like.

And so I think it timely that Dr. Lee has called our attention to this common situation so that the pregnant mother can be protected herself, against the loss of calcium, and more particularly that the child may be protected from the subsequent early decay of the teeth.

One of the regrets of my experience, in my own family, is that I didn't know about this when my three boys were coming along. I wish now that I had put the mother and those boys on cod liver oil and some of the foods that contain more vitamin D, than they had. They had plenty of sunshine, but I think they would have had better teeth if I had known. I think we owe it to the coming generations to see to it that the children born have a better chance to escape dental caries.

Dr. R. A. Ross: I would like to ask Dr. Lee a question: If any, what has been his experience with the calcium content in the blood in the late toxemias of pregnancy. We have not been able to find any constant alteration in it at that time, although a good many people now think that the especially convulsive type of eclampsia is due to lack of calcium metabolism.

Chairman Spicer: Are there other questions, before Dr. Lee answers? If not, Dr. Lee, will you close?

Dr. Lee: I hope this paper will call to your attention the importance of calcium in the pregnant woman, and during pregnancy. The point that stimulated me to go into the calcium determination was a monograph of Hartley, in which he described tetanoid syndrome. I have had women coming to me complaining of cramps in the legs and feeling badly, not sleeping, irritable, and I didn't know what to do for them. I told them it was due to pressure. A lot of us have told them the same thing. But since this work of Hartley, I have gotten very gratifying results from the use

of calcium. The patients all feel much better, and they are in considerably better general condition when they come to term.

In answer to Dr. Ross's question, I have only had four toxemics where calcium was up. The findings have not been at all constant. In two of them it was around eight. In one it was twelve, which is high. In the third one, while she was a toxemic, she was not a convulsive. She had nephritic damage. She had twins. And her serum calcium was about twelve. Her spinal fluid calcium was three and a half, which shows you have a diminution in your diffusable portion. I didn't include that case in the series because, as a certain professor used to say in school, God deliver me from the man who has "seen a case."

Another thing as to the treatment is the use of irradiated foods as a source of vitamin D—the use of sun, and the use of the ultra-violet light. (Applause)

Chairman Spicer: The next paper is "The New Treatment for Vaginal Gonorrhea," by Dr. Oren Moore of Charlotte.

THE NEW TREATMENT FOR VAGINAL GONORRHEA

By Dr. Oren Moore, Charlotte

There was an old story going around, some years ago, with which you are all very familiar, I am sure, to the effect that rumor had it there was a man named Jones in New York who had made $25,000 by going long on sugar. Somebody who was acquainted with the facts said that it was a man named Smith in New Orleans, and that he had lost $5,000 by going short on coffee, and otherwise the story was about true.

Now the title of my paper today, and the announcement made by the Chairman, is just about as correct as that. It is not a paper. The treatment probably is not new. And aside from those facts, what he said is essentially true. My name is correct. (Laughter)

Most of us remember that the vagina itself, the vaginal mucous membrane, has a particular resistance to infection from the gonorrheal germ, and yet most of us feel that when a woman has acute gonorrheal infection over any length of time at least part of the vaginal mucosa does become involved, and in those rare instances in which a great deal of the mucosa has become involved, and in which we have a true gonorrheal vaginitis, we find ourselves in great difficulty as to treatment. Some of them, indeed, persist over such long periods of time, and get such poor results, that we, as well as the patient, often despair.

There is nothing original in the idea which I am going to present this afternoon, and the reason I said it was a new treatment was because, when Dr. Spicer, in desperation to fill out his program, called me over long distance, and said, "Will you read a paper?"—I said yes, always being willing to read a paper. And since we were using up his money, I said,

"What shall I read on?" And he said, "Anything." And I said, "All right—'Treatment of Gonorrhea,' " and he hung up. He was saving money.

The idea, as I said, is not original—dating back as far as 1916, when Milliken, on the staff of Norris at the University of Pennsylvania, experimenting on the treatment of infectious vaginitis in little girls and in infants, brought out the fact that the vaginal mucosa before puberty is made up of the columna type of cells in the epithelium, which changes over around puberty, and when menstruation begins that vaginal mucosa becomes the flat, squamous cell type, and that is subject to infection from organisms. And by the application of dry heat over a long period of time he could observe a change in the type of the mucosa, and advocated it as a treatment for the infectious vaginitis of infants.

Now, Milliken rigged up a machine which had as its terminal unit a tip injected into the vagina of the little girls, and a hot air apparatus for pumping hot air. I never could get the little girls to be still long enough, or get anybody to hold them, so we abandoned it.

But in the treatment of the vagina, and reaching around desperately in my subconscious mind for something to serve the purpose, I read the work of Milliken and set about to see if we could apply it to the mucosa of these women. And so we devised an irrigating specimen of a very simple type, such as I have here—a speculum, with an irrigating unit in the center. It is composed of wires, and therefore allows the whole surface of the interior of the vagina to be exposed to the treatment. When it is put in, collapsed, and the center piece is pulled down, it opens the vagina an appreciable amount.

We set about to try to find out if we could apply heat to the interior wall of the vagina. This was put in the vagina (indicating speculum). The patient was put to bed and the ordinary tent erected over her body—a wire framework with sheets spread over it, and three or four incandescent globes put in, as you rig up your tents for shock, or whatnot. And attached to the metal tube was a rubber tube, and at the other end of the tube, three or four feet long, was an ordinary bulb, and that was laid out on top of the cover. And the patient had nothing to do all day but pump the vagina full of hot air. She would lay up there for a number of days in the hospital. Most of them are willing to go to the hospital. They have used up a lot of time and money coming to your office, trying suppositories and everything else under heaven, and still wearing pads. So there is not much difficulty in getting the women to go to the hospital.

This thing, strange to say, is not very painful. On occasions, the tension in the vaginal wall begins to irk, and then all that has to be done is that the nurse comes along and releases it without taking it out. She lets down the tension, that way, and after an hour or two it can be pushed back, and the vagina opened.

Strange to say, results have been fine on the few cases we have tried. They have been very good. The drying out is immediate. The walls them-

selves change over in remarkable fashion. I am interested to know, and will attempt to follow up, to see whether there is a failure to change from the columna to the flattened type in this particular type of woman; and whether, after this has been used for a period of time, there is a change or transition to the squamous type. But anyway, it does offer a way out, or a way that might prove helpful. It might be a little expensive to the average patient, but it is certainly one that is worth trying.

I thought, when I said I would appear on this program, that I would be the man to make the Roman holiday by presenting such an inefficient paper for your discussion and observation. However, Carter preceded me and offered himself as a sacrifice. I see no reason why both of us were here today. Thanks. (Applause)

DISCUSSION

CHAIRMAN SPICER: Is there any discussion on this talk of Dr. Moore?

DR. JOHNSON: I would just like to ask if he treats the cervix in these cases, and while he is using the treatment does he use any silver nitrate or mercurochrome. Do you pay any attention to the cervix at all, and how long do you keep them in the hospital?

DR. MOORE: How long do I expect to keep them? As long as they will stay and as long as they are improving. The longest case that I had stayed in ten days. Then her money gave out and she left the hospital, but she was quite anxious to return when times get better. I am sure she will have gonorrhea at that time—and right along. So she will probably get back her interest.

Of course, there was in every instance a cervicitis—always a cervicitis present. And did I use any medicines? Why, everything I ever heard of I used on them. If there was anything I didn't use, I don't know what it would be. I tried everything imaginable on gonorrheal cervicitis. What I am talking about is that we have been treating the cervix for a long time, and that is why this came to light. Some of the women treated in this fashion have been through two or three other doctors' hands. Finally they thought they would come to a specialist, and they got exactly the same results as they did before, which is nothing at all. So in defense of the specialist I had to get up something new, and if this is not new it is because everything has been tried. You know what a mess it is to get the vagina constantly irrigated. Well, it is no trouble to do that. The trouble is to keep the patient from drowning. Without being facetious, however, I believe there is a factor of worth behind keeping the vagina dry and the mucosa dry. Nobody I know of has seen a gonorrheal infection of the skin. It is described, of course, but I have never seen anything I could recognize as such. Perhaps that is one of the factors behind it. Bacteria do not live on the outside, and if we can temporarily convert that internal structure into an external one by free access of air, we might be bringing about the environment desirable for the treatment.

Dr. Ross: Have you tried the treatment on trichomonas?

Dr. Moore: I have not seen a trichomonas that has not responded to treatment, since I have tried this. Most of them have responded quickly.

I might say it would not be necessary to go to the hospital for a treatment of this kind. A person could use the same apparatus at home, of course. It would not be very difficult to arrange.

Chairman Spicer: That completes the papers in this Section, due to the fact that Dr. White and Dr. Sharpe were detained and not able to get here.

. . . The Committee on Nominations reported the name of Dr. John Lester Ransom for Chairman of the Section, and he was elected for the ensuing year . . .

. . . The Section then adjourned, at 4:45 P. M. . . .

WOMEN'S AUXILIARY

OFFICERS 1932-1933

President—Mrs. W. P. Knight.....Greensboro
President-Elect—Mrs. Jno. W. Huston.....Asheville
First Vice-President—Mrs. R. S. McGeachy.....Greenville
Second Vice-President—Mrs. R. E. Brooks.....Burlington
Third Vice-President—Mrs. J. M. Parrott.....Kinston
Treasurer—Mrs. A. B. Holmes.....Fairmont
Corresponding Secretary—Mrs. D. W. Holt.....Greensboro
Recording Secretary—Mrs. P. P. McCain.....Sanatorium

COUNCILLORS

First District—
Second District—Mrs. W. I. Wooten.....Greenville
Third District—Mrs. J. C. Wessell.....Wilmington
Fourth District—Mrs. Malcolm Bizzell.....Goldsboro
Fifth District—Mrs. O. L. McFayden.....Fayetteville
Sixth District—Mrs. G. H. Macon.....Warrenton
Seventh District—Mrs. Reid Patterson.....Charlotte
Eighth District—Mrs. A. D. Ownbey.....Greensboro
Ninth District—Mrs. B. W. McKenzie.....Salisbury
Tenth District—Mrs. B. L. Ashworth.....Marion

OFFICERS 1933-1934

President—Mrs. Jno. W. Huston.....Asheville
President-Elect—Mrs. J. B. Sidbury.....Wilmington
First Vice-President—Mrs. W. P. Knight.....Greensboro
Second Vice-President—Mrs. Reid Patterson.....Charlotte
Third Vice-President—Mrs. K. B. Pace.....Greenville
Treasurer—Mrs. E. C. Judd.....Raleigh
Corresponding Secretary—Mrs. A. T. Hipps.....Asheville
Recording Secretary—Mrs. P. P. McCain.....Sanatorium

PAST PRESIDENTS

1923—(Organizing Chairman)—Mrs. P. P. McCain.....Sanatorium
1924—Mrs. P. P. McCain.....Sanatorium
1925—Mrs. I. W. Faison.....Charlotte
1926—Mrs. J. Howell Way.....Waynesville
1927—Mrs. R. S. McGeachy.....Kinston
1928—Mrs. Benj. J. Lawrence.....Raleigh
1929—Mrs. A. B. Holmes.....Fairmont
1930—Mrs. J. H. Macon.....Warrenton

1931—Mrs. W. B. Murphy ..... Snow Hill
1932—Mrs. R. S. McGeachy ..... Greenville
1933—Mrs. W. P. Knight ..... Greensboro

Tuesday, April 18th

10:00 a. m.—Meeting Executive Board, Sir Walter Hotel, Manteo Room.
2:00 p. m.—Annual Meeting, Carolina Hotel, Ball Room.

PROGRAM

Mrs. W. P. Knight, President, Presiding

Invocation—Rev. Milton A. Barber, D.D., Raleigh.
Address of Welcome—Mrs. C. E. Flowers.
Zebulon—presenting Mrs. Knight and Mrs. Huston with corsages.

RESPONSE TO WELCOME

Mrs. W. L. Jackson, High Point

After listening to such gracious words of welcome, I feel rather weighted down with my responsibility. How can I make you understand how really happy we are to be here?

Perhaps some of you remember that morning in Asheville, ten years ago, when the Woman's Auxiliary to the Medical Society of the State of North Carolina was organized. As we all know there is a peculiar bond of sympathy between doctors' wives, for no one, except another doctor's wife, can possibly appreciate the joys—and shall I say "inconveniences" rather than sorrows, of our daily life. For instance there are the times we have sat, all dressed up, waiting in vain for the doctor to appear, only to get that familiar message, "I am tied up, and we just can't go!"

Fortunately it doesn't always happen that way, and those of us who are here today greatly appreciate the privilege of your hospitality. We are glad we came, and I know we shall be sorry when the time comes for our departure.

Reading of Minutes in 1932 Transactions—
Mrs. P. P. McCain, Secretary.

TREASURER'S REPORT

Mrs. A. B. Holmes

RECEIPTS

Balance April 19, 1932	$ 90.42	
259 members	259.00	
Donation to Bed—New Hanover County	53.00	
Donation to Bed—Cumberland County	5.00	
Gifts to Bed, Donors' names withheld	6.50	
		$ 413.92

DISBURSEMENTS

Stationery—Dr. Ownby, Greensboro	$ 13.00	
Postage and typing—Mrs. Knight	10.39	
Flowers, telegram to Mrs. Knight for Mrs. Freeman	6.73	
Postage and typing—Mrs. Holmes	6.50	
*American Medical Association Member's dues	41.75	
16 checks at 2c	.32	
**North Carolina Sanatorium Bed	333.00	
Check—Mrs. E. C. Judd, Treasurer	2.23	
		$ 413.92

LOAN FUND

May 25, 1931	$ 657.25
Interest, 3-1-33	41.62
April 25, 1932	79.05
Interest, 3-1-33	1.71
Guilford County Auxiliary, April, 1933	4.00
	$ 783.63

The Loan Fund is protected by bond and will not be available until Sept. 25, 1932, for transfer to new treasurer.

REPORT OF CORRESPONDING SECRETARY

Mrs. D. W. Holt

Mrs. Holt had not done as much as she should as the President had done most of the writing.

REPORT OF STANDING COMMITTEE—STUDENT LOAN FUND

Mrs. W. B. Murphy

Mrs. Murphy introduced the following resolution, which was unanimously adopted:

"That the Medical Auxiliary Loan Fund be immediately made available to children of North Carolina doctors, limiting the loan to $100.00 a year for two years to one individual; the money to be paid back one year after graduation with interest at six per cent; the application of each individual to be endorsed by the Auxiliary to the County Medical Society and the County Medical Society in the county in which applicant lives, or in case there are no local organizations, by two physicians and the wives of two physicians in the County. The note of each applicant to have two absolutely trustworthy endorsers."

PUBLIC RELATIONS

Mrs. J. O. McClelland, Maxton

Absent.

HOSPITAL BED

Mrs. A. B. Holmes

(See Treasurer's report.)

*In restricted Bank—ordered paid as soon as available.
**June 1, 1932 to April 30, 1933.

HYGEIA

Mrs. Wm. A. Brewton, Eureka

Absent.

ECHOES FROM WOMAN'S AUXILIARY TO A. M. A.

Excellent reports were given by Mrs. M. L. Stevens, Asheville, and Mrs. F. R. Taylor, High Point.

Greetings—From State Medical Society, by Dr. J. B. Wright, Pres.

ADDRESS

Dr. Jno. B. Wright

President the Medical Society of the State of North Carolina

Madam President and Members of the Women's Auxliliary to the Medical Society of the State of North Carolina:

Your organization is young and vigorous and filled with enthusiasm and ambition. You have grown so rapidly I can scarcely realize the proportions in strength, size and influence you have so quickly attained. You ladies are the partners of the doctors. This partnership makes our interests yours and your problems ours. While you and your work does not bring you directly in touch with our scientific deliberations, your work is to help us on an equal basis, solve and plan and correct the many injustices now being perpetrated on the medical profession. The propaganda so extensively broadcasted from without and within the medical profession of the cost of medical care is of vital significance to not only the medical profession, but also the Auxiliary. Dr. A. J. McLaughlin, Medical Director of the United States Public Health Service, has summed up the problem of cost of medical care in the following logical statement:

"There has been a lot of loose talk and inaccurate statements in regard to the cost of medical care. The best modern medical care is worth all that you pay for it, provided you can afford the cost. The cost has not increased out of proportion to the increased cost of other services. Medical care, especially early diagnostic procedures and treatment, has been expanded and amplified by the discovery of more precise methods of diagnosis and has become exceedingly complex. This necessarily increases the cost of examination as compared with that of 40 years ago, when the physician used only his own senses and perhaps a stethoscope."

The erroneous rumors and impressions abroad are destroying the confidence and cordial relations between the public and your husbands. The encroachments on the private practice of medicine have reached an alarming magnitude. The health of the community along with the care of the sick are the natural sources of revenue for the doctors and any encroachments on the care for the sick is taking your husbands' means of a livelihood away from them. There are numerous ways of co-operation for the common good between the Auxiliary and the medical profession. The under-privileged child is a problem that should have careful study,

not only by medicine, but by the Auxiliary for it is not only a social but a medical problem.

Our State Health laws should be carefully studied by you, familiarizing yourselves with the magnitude of the activities of our State Board of Health. Knowledge is power in your hands in assisting, explaining and interpreting the law to the laity.

Your organization can wield a marvelous influence in combatting the waste in money, not to allude to the mortality aspect of results of ill-prepared cults and practitioners. These ill-prepared practitioners are being paid more than one hundred and twenty-five million dollars annually. The control of these healing cults and all sectarian medical practice is another field for service and the medical profession needs your efforts and support. In order to be effective in this great undertaking, the public must be informed. This can be done in many ways. The Auxiliary can assist other organizations at county and state fairs and similar places in conducting booths where literature provided by the Medical Society dealing with health topics of interest to the public may be distributed. Publicity is a powerful weapon with which to fight ignorance and superstition.

As you ladies thoroughly know, a doctor's whole training is to give, not to get. His professional duties so occupy his time and energy that he has no time for business activities. After he has thoroughly prepared himself for his profession and established a practice, his remaining working years are few. When his work stops, his income stops, although his expenses continue; often when his work is stopped by illness, his expenses increase. In these difficult days it would be a great thing to occupy some of your energy in remembering our own and making sure that none of them are in distress. The details of the expenditure of any funds raised should be wisely and prudently expended. This is a suggestion of Dr. Walter F. Donaldson.

Every member of the Women's Auxiliary should read your husbands' medical journals; you should read the bulletin of the A. M. A. and *Hygeia*. In reading these journals, you keep yourselves informed on all the present day medical problems. The public should and doubtless will look to the medical profession for enlightened leadership and sound advice in all health problems; the medical press is the means of conveying this enlightenment first to the medical profession and from them it is to reach the public. Here the Auxiliary can be of great assistance by informing themselves by reading the medical periodicals. It is up to the medical profession to participate in the campaign of carrying to every community in the country the status of health and sanitation and the view of medicine should be made known to at least the well-wishers and followers among the lay population.

There are thousands of ways the Auxiliary can function and self-help is the best help; therefore, any suggestion of what and how to do your work is superfluous. Suffice it to say that the present fad of foods has

grown to be a real medical specialty. Knowledge of the vitamins and calories different articles of food contain and the necessity for periodic health examinations, etc., are summed up in articles in different medical periodicals. May I close with this little advice taken from *Hygeia*: "In middle age, it is advisable to cut down the waist-line if one does not want the life-line cut short."

PRESIDENT'S REPORT

Mrs. W. P. Knight

As we cross the threshold of a New Year shall we, like other businesses, pause and take stock of ourselves—to see where we have arrived in relation to the goal which we set.

I'm somewhat like Alice in Wonderland—when at the command of "Faster, faster" from the Queen, she had run the mad race and awakened to find herself propped against the tree—beneath whose branches the whole race had been run, and was able to exclaim—"In our country you'd generally get somewhere else, if you ran very fast for a long time, as we've been doing—." "A slow sort of country," said the Queen—"Now, here, you see it takes all the running you can do to keep in the same place. I feel as though I too had stepped "Through the Looking Glass," and like Alice and the Red Queen, were barely able to "keep in the same place." But, we do feel that in spite of Old Man Depression—we have held tight to the achievements already attained even if we couldn't *do* big things this year. Know your Auxiliary—has been our slogan for the year, and consequently is responsible for the type program we have at this meeting.

The Woman's Auxiliary is such a new phenomenon in the development of medicine that at times the members seem somewhat at a loss to know what method of attendance and what variety of nourishment is required for the babe which has been laid rather unexpectedly upon our doorstep—often wonder if their formulas are correct. The Woman's Auxiliary is the most logical and efficient medium for bringing about an increased spirit of friendliness among the doctors' wives, and it also brings the doctors into a better understanding of each other. The better we know each other, the more we realize that we are more alike than we are different. So, let's learn to look for the good in one another. I for one think that one of the greatest values of our organization lies in the social side, and since God's word tells us, "Let all things be done decently and in order"—hence the business procedure.

I have enjoyed immensely the paper contacts I've had with so many of you this past year. I have discovered that everyone is so lovely and helpful, especially do I thank Mesdames McGeachy, Ownbey and Holmes for answering to many of my numerous questions in the beginning of my work. To Mrs. Murphy's little booklet I owe much. To my officers and members of the Auxiliary for the splendid co-operation given me, I'm

deeply grateful, and trust that the friendships formed may flourish through the coming years.

Your President has written 400 letters and cards, attended two district meetings, four board meetings, visited one Auxiliary and helped in the programs of others. After each board meeting a report of said meeting was issued to officers, councillors, chairmen, and county Presidents. The reports were also sent to Dr. Northington to be published in *Southern Medicine and Surgery*. Also every local item that we could get our hands on was published. The lovely report of the new Hanover County Auxiliary was published. I hope you read it—a delightful meeting of the Burlington Auxiliary was also published. Please report your meetings.

Those reports were more in the form of bulletins—for in them each secretary was given a chance to send a message. Several auxiliaries which were napping last summer, suddenly waked up, and, are doing splendid work. After our meeting in Winston our roll showed 365 paid members, in 28 counties. (map)

Our Student Loan Fund has necessarily grown slowly this year. But, once a body of women, such as you, have undertaken a definite object, even though we've had our ups and downs, we will be found getting up and trying it again.

We grow only when we are thoughtful, we live only when we serve, we are compensated in a permanent way only when we do something worthwhile for somebody else. So let's see to it this year that we make a voluntary offering to our S. L. F., thereby helping somebody's child.

I'd like to ask each of you if you are at any time near State Sanatorium, please stop and ask to see Miss Jester—our patient there. Then, if for any reason, you are not a member of the Auxiliary, I'm sure, that after you have seen her and you realize what a wonderful thing you can help do with your dues of $1.00, that you'll be sending in a $1.00 by the next mail, asking us to add your name to the list of members. Christ went about doing good and He has said, "If any man would come after me, let him deny himself, and take up the cross and follow me," and, when we take up our cross, it means living each day in accord with God's will and nothing could be more pleasing to Him than for us to heal the sick.

Women of the auxiliaries are personally familiar—only too familiar at times, with the doctors' problems. They understand his anxieties, they sympathize with his tribulations and they share his ambitions for the welfare of mankind.

Each succeeding generation of the race is the beneficiary of the care bestowed by the womanhood of the generation before it, and we should wish to carry on. Our position as doctors' wives surround us with an opportunity for investigating health questions, and with our husbands as teachers we have a better understanding of preventive measures for the

control of communicable diseases. We can furnish valuable information as to what medical science has done and is doing for public health.

We can help through other organizations, we can study legislative problems and be ready to vote against measures, which if passed, would do great harm to the profession, such as vivisection. We can create a fund for the distribution of *Hygeia,* the best health magazine for the general public, that I know anything of.

We may find periods of idleness and discouragement when no foe is in sight and no purpose seems worthy of effort, but ignorance is always at our elbow. Our master has said, "Whosoever would be chiefest among you, shall be servant of all."

We came not to our place by accident, it is the very place God meant for us. We all want to grow, to aspire, to achieve, because, as Phillips Brooks has said, "We feel forever the thing we ought to be beating under the thing we are."

No matter how efficient and faithful your officers—or how excellent your program—the success of the Auxiliary depends upon the work and support of the individual members.

I will offer a few suggestions. (1) Attend the meetings regularly. If you cannot write a paper or make a speech, be an appreciative listener. Your presence will encourage the President. (2) If possible, accept cheerfully the work assigned you, be willing to do your part. (3) Answer letters promptly—often a post card is all that is necessary and should be written at once. Nothing delays the work, or is more annoying to a busy officer than to have to wait for days for a reply. (4) Make constructive, not destructive criticisms; the former are always welcome.

A good thing to remember, and a better thing to do, is to belong to the constructive gang and not the wrecking crew.

As members of the Woman's Auxiliary to the Medical Society may we feel with Edwin Markham:

"To each man is given a day and his work for the day,
And once, and no more, he is given to travel this way.
And woe if he flies from the task, whatever the odds,
For the task is appointed to him on the scroll of the gods.

"Yes, the task that is given to each man no other can do;
So the errand is waiting; it has waited ages for you.
And now you appear; and the Hushed Ones are turning
their gaze
To see what you do with your chance in the Chamber of days."

REPORT OF COUNCILLORS

FIRST DISTRICT

No report.

SECOND DISTRICT

No report.

THIRD DISTRICT

Presidents are: Mrs. J. F. Robertson, Wilmington; Mrs. J. D. Robinson, Wallace; Mrs. J. P. Henderson, Jacksonville; Mrs. Jarvis Lee, Newton Grove.

FOURTH DISTRICT

No report.

FIFTH DISTRICT

Robeson County—Mrs. J. A. Martin, Lumberton, President. Held four meetings.

Hoke County—Mrs. R. A. Matheson, Raeford, President. Held five meetings and 100% membership.

Cumberland County—Turned in $5 for Bed Fund.

Montgomery County—Mrs. J. M. McMillan, Candor, President.

SIXTH DISTRICT

No report.

SEVENTH DISTRICT

No report.

EIGHTH DISTRICT

Guilford only county organized. Had four meetings, met at banquet with doctors; sent nice box of gifts to occupant of bed at Sanatorium; placed *Hygeia* in libraries of Greensboro and High Point.

NINTH DISTRICT

No report.

TENTH DISTRICT

Mrs. D. M. McIntosh, Old Fort, Vice-Councillor. Buncombe only county organized.

REPORT OF HISTORIAN

Mrs. J. A. Keiger

The report, which showed a great deal of work and study, was most enthusiastically received. Mrs. Keiger also showed her scrap-book and asked for news items.

REPORT OF JANE TODD CRAWFORD

Mrs. Frank Sharpe, Chairman, Greensboro

JANE TODD CRAWFORD, PIONEER HEROINE OF SURGERY

Madam President, Members of the Auxiliary to the North Carolina State Medical Association:

This year our President appointed me as State Chairman of the Jane Todd Crawford Memorial; because this is a new work for our auxiliaries, and because we cannot now support the fund that will eventually become a lasting tribute to this great woman—we have endeavored this year to find out all that is available about Jane Todd Crawford.

This is the story of a brave woman who dared to go under the surgeon's knife so that you and I may reap the benefit of her great courage.

Jane Todd Crawford was born in Rockbridge County, Va., Dec. 23, 1762. She was the oldest of eight children—all of whom married and removed to Kentucky, two sisters moving later to Indiana.

On January 9, 1794, Jane Todd was united in marriage with Thomas Crawford, and settled, on Nov. 5th, on Blue Spring Branch of Caney Fork, nine miles southeast of Greensburg, Kentucky.

There were five children born to this union, three sons and two daughters; one of the daughters died in infancy—all were born before the operation. These children were, like their parents, all fine citizens. One son, the Rev. James Crawford, was the Presbyterian minister at Graysville, Indiana. And the youngest, Hon. Thos. Crawford, was mayor of Louisville in 1859.

In the year 1809, Mrs. Crawford was dying from a rapidly growing tumor of the ovary. Two local physicians consulted and decided to call in Dr. Ephriam McDowell, a practitioner of fourteen years' experience, from Danville, Ky.

The medical profession has time and again honored Dr. Ephriam McDowell. He, too, was born in Virginia. He studied in Kentucky, Virginia, and the University of Edinburgh, and received his M.D. degree as an honorary degree conferred on him by the University of Maryland in 1832. He practiced in Danville, Ky., had a large clientele, and did practically all of the surgical operations then commonly attempted. Dr. McDowell was one thousand miles from the nearest hospital. All this

shows his tremendous courage, and the skill of his accomplishment, and he is truly entitled to his place in the hall of American heroes of medical fame.

There is no historical data for our reference here, but the consultation between the attending physicians and Dr. McDowell is most graphically described by Dr. Samuel Gross as follows:

"After a most thorough and critical examination, Dr. McDowell informed his patient, a woman of unusual courage and strength of mind, that the only chance for relief was the excision of the diseased mass (an ovarian tumor). He explained to her, with great clearness and fidelity, the nature and hazard of the operation. He told her that he had never performed it, but that he was ready, if she were willing, to undertake it, and risk his reputation upon the issue, adding that it was an experiment, but an experiment well worthy of trial. Mrs. Crawford listened to the surgeon with great patience and coolness, and, at the close of the interview, promptly assured him that she was not only willing, but, suicide excepted, anything was preferable to the ceaseless agony which she was enduring, and that she would hazard anything that held out even the most remote prospect of relief. The result has been long before the profession. Mrs. Crawford submitted to the operation, and thus became the first subject of ovariotomy of whom we have any knowledge."

No words can describe the operation itself better than in Dr. McDowell's own report of the operation published in the only medical journal at that time.

"In December, 1809, I was called to see a Mrs. Crawford, who had for several months thought herself pregnant. She was affected with pain similar to labor pains, for which she could find no relief. So strong was the presumption of her being in the last stage of pregnancy, that two physicians, who were consulted in her case, requested my aid in delivering her. The abdomen was considerably enlarged, and had the appearance of pregnancy, though the inclination of the tumor was to one side, admitting an easy removal to the other. Upon examination, I found nothing in the uterus, which induced the conclusion that it must be an enlarged ovarium. Having never seen so large a substance extracted, nor heard of an attempt or success attending any operation such as this required, I gave to the unhappy woman information of her dangerous situation. She appeared willing to undergo an experiment, which I promised to perform, if she would come to Danville, the town where I live, a distance of sixty miles from her place of residence. This appeared almost impracticable by any than the most favorable conveyance, though she performed the journey in a few days on horseback. With the assistance of my nephew and colleague, James McDowell, M.D., I commenced the operation, which was concluded as follows: Having placed her on a table of ordinary height, on her back, and removed all her dressing which might in any way impede the operation, I made an incision about three inches long, through the

musculus rectus abdominis, on the left side, continuing the same nine inches in length, parallel with the fibres of the above-named muscle, extending into the cavity of the abdomen, the parietes of which were a good deal contused, which we ascribed to the resting of the tumor on the horn of the saddle during the journey. The tumor then appeared in full view, but was so large that we could not take it away entire. We put a strong ligature around the Fallopian tube near to the uterus; we then cut open the tumor which was the ovarium, and the fimbriated part of the Fallopian tube very much enlarged. We took out fifteen pounds of a dirty, gelatinous-looking substance, after which we cut through the Fallopian and extracted the sac, which weighed seven and a half pounds. As soon as the external opening was made, the intestines rushed out upon the table, and so completely was the abdomen filled by the tumor, that they could not be replaced during the operation, which was terminated in about twenty-five minutes. We then turned her upon her left side, so as to permit the blood to escape, after which we closed the external opening with the interrupted suture, leaving out at the lower end of the incision the ligature which surrounded the Fallopian tube. Between every two stitches we put a strip of adhesive plaster, which, by keeping the parts in contact, hastened the healing of the incision. We then applied the usual dressing, put her to bed and prescribed a strict observance of the antiphologistic regimen. In five days, I visited her, and much to my astonishment, found her engaged in making her bed. I gave her particular caution for the future and in twenty-five days she returned home, as she came, in good health, which she continues to enjoy."

Let us visualize for a moment the cold, bare room where this operation was performed—the wooden table covered with a blanket, and lying there is Mrs. Crawford, a woman 47 years of age, with her head on a pillow and a light covering. She possessed a fighting spirit, a courage and faith that would rival that of any soldier in the midst of battle. Her only anesthetic was strong arms that pinned her down to the wooden table to endure in agony the operation. No morphine to lessen the pain afterwards. —Clark Clinic.

Jane Todd Crawford's faith was above and beyond earthly things—she did not cry out in her torture, but constantly repeated the Psalms of David, showing a divine heroism, and a supreme trust in her Heavenly Father.

Are we able to estimate our debt of gratitude to Jane Todd Crawford? Each one of us at some time have had this experience or have stood by a loved one. It was her bravery, courage, faith—that enables us today to go peacefully to sleep, and not feel the knife, as it saves us from the harrowing suffering that Mrs. Crawford endured. She lived to be 78 years of age, living 31 years after the operation.

It is our privilege as wives, daughters, mothers and sisters of physicians and surgeons to help establish this memorial—it will be placed in the

hands of a committee, and when the call comes to us in North Carolina, let us show *our* appreciation by bending every energy to perpetuate the bravery of Jane Todd Crawford.

OLD BUSINESS

It was moved and carried that the President appoint a committee to revise and clarify the By-laws. The President appointed the following committee: Mrs. R. S. McGeachy, Mrs. J. B. Sidbury, Mrs. P. P. McCain, Mrs. J. C. Wessel.

The following resolution amending the By-laws, sent up by the Executive Board, was adopted:

"RESOLVED, that Section 2—Committees—be amended by adding at the end thereof the following:

"There is hereby created by the Executive Board a standing committee to be known as the Student Loan Fund Commitee. Said Committee shall have charge of the loaning of the funds in the treasury of the said fund and shall be constituted as follows: the treasurer ex-officio, permanent chairman to be appointed by the President and third member to be elected at the annual meeting of the Auxiliary, two members of the Medical Society of the State of North Carolina to be appointed by the President of that body. The term of office of the member to be elected by the Auxiliary and the two members from the State Medical Society shall be three years."

NEW BUSINESS

There was no new business.

AWARDING OF PRIZES

$5 to New Hanover County Auxiliary for largest contribution to Bed Fund—given by Mrs. P. P. McCain.

QUESTION BOX

Various items of interest were discussed.

REPORT OF NOMINATING COMMITTEE

Composed of Mrs. J. F. Robertson, Wilmington; Mrs. Alonzo Myers, Charlotte; Mrs. Julian Moore, Asheville; Mrs. Charles Laughinghouse, Greenville; Mrs. V. M. Hicks, Raleigh. The report was unanimously adopted. See officers, p. 513.

INSTALLATION OF OFFICERS

MRS. J. B. SIDBURY

Our New Year—The new President, Mrs. Huston, stressed the benefits that can be obtained from the Auxiliary, and urged greater co-operation.

REPORT OF COURTESY COMMITTEE

Mrs. Roy Hege, Winston-Salem

REPORT OF COMMITTEE ON ARRANGEMENTS

Mrs. Chas. P. Eldridge, Chairman

ADJOURNMENT

The Executive Committee held a meeting on Wednesday morning and made the following recommendations:

1. That officers hold office not longer than two consecutive years.
2. That 25c be taken for State work out of the 75c—which is left of annual dues after 25c is taken out for A. M. A.—leaving 50c of each $1.00 going to the Bed Fund.
3. That the Second Vice-President be known as the Chairman of the Sanatorium Bed Fund.

Tuesday, April 18

4:00 p. m.—Supervised tour of buildings, Dix Hill.

5:00 p. m.—Tea at State Hospital, Dr. and Mrs. J. W. Ashby entertaining.

8:30 p. m.—President's reception and dance—Sir Walter Ball Room.

Wednesday, April 19th

9:00 a. m.—Meeting Executive Board, Sir Walter Hotel, Manteo Room.

10:30 a. m.—Bridge Luncheon, Woman's Club.

COMMITTEE ON ARRANGEMENTS

Mrs. Chas. P. Eldridge, Chairman
Mrs. V. M. Hicks
Mrs. A. S. Oliver—Tea
Mrs. E. C. Judd—Bridge Luncheon
Mrs. H. B. Haywood, Jr.—Dance
Mrs. B. J. Lawrence—Publicity
Mrs. Z. M. Caviness—Transportation

PROGRAM OF ENTERTAINMENTS FOR AUXILIARY ADMISSION BY BADGE

Tuesday Afternoon

4:00 p. m.—At Dix Hill a supervised tour of the various buildings, kitchens, etc.

5:00 p. m.—At Dix Hill, a tea given by Dr. J. W. Ashby. Transportation will be provided.

WEDNESDAY

10:30 a. m.—Bridge at the Woman's Club.
Golf available at the Carolina Country Club.

At the Carolina Pines, all facilities are available without charge to all the visiting ladies. Tennis, golf, horseback riding, etc., are offered, with ample free transportation. This Club is planning varied forms of entertainment for the ladies and it is urged that as many as are interested spend as much time there as they may wish. Sports clothes will be in evidence there. Bridge is being arranged there for those who care for it at any time. Also there will be plenty of their famous mineral water available for all purposes.

LADIES' GOLF TOURNAMENT

Monday, Tuesday, and Wednesday, April 17, 18, and 19, 1933, a tournament will be held for the ladies at the Carolina Pines Country Club, two miles south of Raleigh on Route 21. The same rules will apply as for the men's tournament and similar prizes will be offered. The Carolina Pines is offering a silver trophy cup for low gross score prize for ladies. Other prizes will also be given for low net score and runner-up in both net and gross scores. All visitors have the privileges of the golf courses at the Carolina Country Club and at the Carolina Pines. There will be no green fees.

ADVISORY COMMITTEE FROM MEDICAL SOCIETY

Dr. C. V. Reynolds, Chairman, Asheville; Dr. J. R. McCracken, Waynesville; Dr. D. T. Tayloe, Washington.

ROSTER OF MEMBERS, 1932-1933

Anderson, Mrs. C. A.....Burlington
Ashworth, Mrs. B. L.....Marion
Ashworth, Mrs. W. C.....Greensboro
Averett, Mrs. K. G.....Cedar Creek
Avery, Mrs. E. S.....Winston-Salem
Baker, Mrs. H. M.....Lumberton
Banner, Mrs. C. W.....Greensboro
Barron, Mrs. A. A.....Charlotte
Basnight, Mrs. T. G.....Stokes
Beam, Mrs. R. S.....Lumberton
Beard, Mrs. G. C.....Atkinson
Bittinger, Mrs. S. M.....Sanatorium
Blackshear, Mrs. T. J.....Wilson
Boone, Mrs. W.....Durham
Bowman, Mrs. E. L.....Lumberton
Bowman, Mrs. H. E.....Aberdeen
Brewer, Mrs. J. S.....Roseboro
Brewton, Mrs. W. A.....Asheville
Bridger, Mrs. D. H.....Bladenboro
Britt, Mrs. J. N.....Lumberton
Broadway, Mrs. R. E.....Tarboro
Brockman, Mrs. H. T.....High Point
Brooks, Mrs. R. E.....Burlington
Brown, Mrs. G. W.....Raeford
Brown, Mrs. J. P.....Fairmont
Buckner, Mrs. J. M.....Asheville
Buie, Mrs. R. M.....Greensboro
Bulluck, Mrs. E. S.....Wilmington
Bulla, Mrs. A. C.....Raleigh
Burnett, Mrs. B. S.....Fort Bragg
Burrus, Mrs. J. T.....High Point
Caldwell, Mrs. M. M.....Wilmington
Campbell, Mrs. A. C.....Raleigh
Carrington, Mrs. G. L.....Burlington
Carlyle, Mrs. J. B.....Burlington
Carmicheal, Mrs. T. W.....Rowland
Carpenter, Mrs. C. C.....Raleigh
Cobb, Mrs. D. B.....Goldsboro
Coddington, Mrs. H. A.....Wilmington
Cozart, Mrs. W. S.....Raleigh
Cooper, Mrs. G. M.....Raleigh
Cranmer, Mrs. J. B.....Wilmington
Craven, Mrs. T.....Huntersville
Crisp, Mrs. S. M.....Greenville

Crouch, Mrs. A. M.....Wilmington
Crumpler, Mrs. P.....Clinton
Currie, Mrs. S. D.....Parkton
Davis, Mrs. P. B.....High Point
Davis, Mrs. R. B.....Greensboro
Dees, Mrs. R. E.....Greensboro
Dewar, Mrs. W. B.....Raleigh
Dickie, Mrs. J. W.....Southern Pines
Eldridge, Mrs. C. P.....Raleigh
Elliott, Mrs. J. A.....Charlotte
Elliott, Mrs. A. H.....Wilmington
Elliott, Mrs. W. F.....Lincolnton
Evans, Mrs. L. B.....Windsor
Farthing, Mrs. L. E.....Wilmington
Felts, Mrs. R. L.....Durham
Fields, Mrs. L. E.....Chapel Hill
Flagge, Mrs. P. W.....High Point
Flowers, Mrs. C. E.....Zebulon
Fox, Mrs. P. G.....Raleigh
Freeman, Mrs. J. D.....Wilmington
Gibson, Mrs. M. R.....Raleigh
Gibbon, Mrs. R. L.....Charlotte
Gilmore, Mrs. C. M.....Greensboro
Godwin, Mrs. G. C.....Asheville
Goodwin, Mrs. A. W.....Raleigh
Goodwin, Mrs. O. S.....Apex
Gooding, Mrs. G. V.....Kenansville
Grady, Mrs. L. V.....Wilson
Green, Mrs. T. M.....Wilmington
Greene, Mrs. J. B.....Asheville
Griffin, Mrs. H. L.....Starr
Griffin, Mrs. F. W.....Asheville
Gwynn, Mrs. H. L.....Yanceyville
Hall, Mrs. J. S.....Wilmington
Hamilton, Mrs. J. H.....Raleigh
Hardin, Mrs. E. R.....Lumberton
Hare, Mrs. R. B.....Wilmington
Harper, Mrs. J. H.....Snow Hill
Hart, Mrs. V. K.....Charlotte
Harris, Mrs. W. T.....Troy
Harriss, Mrs. A. H.....Wilmington
Harriss, Mrs. Joe.....Wilmington
Harvey, Mrs. W. W.....Greensboro
Hayes, Mrs. A. H.....Fairmont
Hege, Mrs. J. R.....Winston-Salem
Henderson, Mrs. J. P.....Jacksonville
Hester, Mrs. W. S.....Reidsville
Hiatt, Mrs. H. B.....High Point
Hicks, Mrs. V. M.....Raleigh
Highsmith, Mrs. J. F.....Fayetteville
Hill, Mrs. M. D.....Raleigh
Hipps, Mrs. A. T.....Asheville
Hoggard, Mrs. J. T.....Wilmington
Holmes, Mrs. A. B.....Fairmont
Holt, Mrs. D. W.....Greensboro
Houser, Mrs. F. M.....Cherryville
Hovis, Mrs. L. W.....Charlotte
Hooker, Mrs. J. S.....Sanatorium
Hudson, Mrs. C. C.....Greensboro
Hunt, Mrs. W. B.....Lexington
Hunter, Mrs. J. P.....Cary
Huston, Mrs. J. W.....Asheville
Jackson, Mrs. W. L.....High Point
Johnson, Mrs. G. W.....Wilmington
Johnson, Mrs. H. L.....Elkin
Johnson, Mrs. T. C.....Lumberton
Jones, Mrs. C. C.....Raleigh
Judd, Mrs. E. C.....Raleigh
Judd, Mrs. J. M.....Varina
Keiger, Mrs. J. A.....Greensboro
King, Mrs. E. S.....Wake Forest
Kirksey, Mrs. W. A.....Fayetteville
Knight, Mrs. W. P.....Greensboro
Kutscher, Mrs. G. W.....Asheville
Lackey, Mrs. F. H.....Falston
Lackey, Mrs. M. A.....High Point
Lancaster, Mrs. F. J.....Lexington
Laughinghouse, Mrs. C. O'H.....Greenville
Lawrence, Mrs. B. J.....Raleigh
Lee, Mrs. J. M.....Newton Grove
Lilly, Mrs. J. M.....Fayetteville
Lucas, Mrs. P. E.....Burgaw
McCain, Mrs. P. P.....Sanatorium
McLelland, Mrs. J. O.....Maxton
McFayden, Mrs. O. L.....Fayetteville
McGeachy, Mrs. R. S.....Greenville
McGee, Mrs. J. A.....Raleigh
McKay, Mrs. R. W.....Charlotte
McLean, Mrs. E. K.....Charlotte
McMillan, Mrs. J. M.....Candor
McMillan, Mrs. R. D.....Red Springs
McPherson, Mrs. C. W.....Burlington
Macon, Mrs. G. H.....Warrenton
Maness, Mrs. E. K.....Greensboro
Mann, Mrs. I. T.....High Point
Marlowe, Mrs. W. A.....Walstonburg
Marsh, Mrs. J. H.....Fayetteville
Martin, Mrs. J. A.....Lumberton
Matheson, Mrs. R. A.....Raeford
Matthews, Mrs. B. M.....Charlotte
Miller, Mrs. A. L.....Charlotte
Mitchner, Mrs. J. S.....Raleigh
Mitchell, Mrs. George.....Wilson
Montgomery, Mrs. H. M.....Burlington
Morefield, Mrs. R. H.....Danbury
Morton, Mrs. J. X.....Faison
Moore, Mrs. A. W.....Charlotte
Moore, Mrs. W. H.....Wilmington
Moore, Mrs. J. A.....Asheville
Murchison, Mrs. D. R.....Wilmington

Murphy, Mrs. G. W.....Asheville
Murphy, Mrs. J. G.....Wilmington
Murphy, Mrs. W. B.....Snow Hill
Murray, Mrs. R. L.....Raeford
Nalle, Mrs. B. C.....Charlotte
Nance, Mrs. C. L.....Charlotte
Nesbit, Mrs. C. T.....Wilmington
Newton, Mrs. H. L.....Charlotte
Nicholson, Mrs. N. G.....Mt. Gilead
Nowlin, Mrs. P.....Charlotte
Oliver, Mrs. A. S.....Raleigh
Ownbey, Mrs. A. D.....Greensboro
Pace, Mrs. K. B.....Greenville
Parker, Mrs. O. L.....Clinton
Patterson, Mrs. Reid.....Charlotte
Peeler, Mrs. C. N.....Charlotte
Perry, Mrs. D. R.....Durham
Person, Mrs. J. B.....Selma
Phillips, Mrs. C. H.....Thomasville
Pope, Mrs. H. T.....Lumberton
Powers, Mrs. F.....Wilmington
Proctor, Mrs. I. W.....Raleigh
Rankin, Mrs. T. M.....Winston-Salem
Rankin, Mrs. W. S.....Charlotte
Ray, Mrs. O. L.....Raleigh
Register, Mrs. F. M.....Raleigh
Reed, Mrs. D. H.....Maxton
Robertson, Mrs. J. F.....Wilmington
Robertson, Mrs. L. H.....Salisbury
Robinson, Mrs. D. E.....Burlington
Robinson, Mrs. J. D.....Wallace
Robinson, Mrs. W. F.....Mars Hill
Rodman, Mrs. R. B.....Wilmington
Rogers, Mrs. J. R.....Raleigh
Royster, Mrs. H. E.....Raleigh
Ruark, Mrs. M. H.....Wilmington
Sasser, Mrs. T. J.....Charlotte
Schoonover, Mrs. R. A.....Greensboro
Seay, Mrs. T. W.....East Spencer
Sessoms, Mrs. E. T.....Roseboro
Sharpe, Mrs. C. R.....Lexington
Sharpe, Mrs. F. A.....Greensboro
Shaw, Mrs. Colin.....Atkinson
Shelbourne, Mrs. P. A.....Greensboro
Shaver, Mrs. W. T.....Albemarle
Sidbury, Mrs. J. B.....Wilmington
Simpson, Mrs. H. H.....Altamahaw
Sisk, Mrs. C. N.....Rockingham
Sloan, Mrs. A. B.....Mooresville
Sloan, Mrs. H. L.....Lumberton
Sloan, Mrs. H. L., Jr.....Charlotte
Slocumb, Mrs. R. B.....Wilmington
Smith, Mrs. J. M.....Rowland
Smith, Mrs. W. G.....Thomasville
Smith, Mrs. W. H.....Goldsboro
Smith, Mrs. F.....Charlotte
Smith, Mrs. S.....Raleigh
Smith, Mrs. J. E.....Windsor
Sowers, Mrs. J. L.....Lexington
Spoon, Mrs. S. C.....Burlington
Squires, Mrs. C. B.....Charlotte
Stanton, Mrs. T. M.....High Point
Stevens, Mrs. M. L.....Asheville
Strickland, Mrs. E. L.....Wilson
Summer, Mrs. H.....Asheville
Sykes, Mrs. S. P.....Asheboro
Symington, Mrs. J.....Carthage
Tankersley, Mrs. J. W.....Greensboro
Taylor, Mrs. F. R.....High Point
Taylor, Mrs. J. E.....Morganton
Taylor, Mrs. W. I.....Burgaw
Taylor, Mrs. J. W.....Greensboro
Thomas, Mrs. C. D.....Sanatorium
Thompson, Mrs. A. F.....Troy
Thompson, Mrs. H. A.....Raleigh
Thompson, Mrs. E. S.....Winston-Salem
Thorpe, Mrs. A. T.....Rocky Mount
Todd, Mrs. L. C.....Charlotte
Troxler, Mrs. R. M.....Burlington
Verdery, Mrs. W. C.....Fayetteville
Walker, Mrs. J. B.....Burlington
Walters, Mrs. C. M.....Burlington
Wannamaker, Mrs. E. J.....Charlotte
Warren, Mrs. R. F.....Prospect Hill
Wegatt, Mrs. A. T.....Lillington
Wessell, Mrs. J. C.....Wilmington
Whicker, Mrs. G. L.....Kannapolis
Wilkerson, Mrs. C. B.....Raleigh
Wilkins, Mrs. J. W.....Mount Olive
Wilkinson, Mrs. C. T.....Wake Forest
Wilkinson, Mrs. R. W., Jr....Wake Forest
Wilson, Mrs. S. G.....Clinton
Williams, Mrs. J. H.....Sanatorium
Williams, Mrs. L. L.....Fayetteville
Wingate, Mrs. G. C.....Charlotte
Winkler, Mrs. H.....Charlotte
Wishart, Mrs. W. E.....Charlotte
Wolfe, Mrs. N. C.....Burgaw
Wooten, Mrs. W. I.....Greenville
Woodard, Mrs. C. A.....Wilson
Wright, Mrs. J. B.....Raleigh
Underwood, Mrs. O. E.....Roseboro
Yarborough, Mrs. F. R.....Cary
Yoder, Mrs. P. A.....Winston-Salem
Ziegler, Mrs. M. V.....Raleigh

TRANSACTIONS

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

TWENTY-THIRD ANNUAL SESSION

THE NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

President
DR. C. N. SISK, Rockingham

Vice-President
DR. F. M. REGISTER, Goldsboro

Secretary
DR. Z. P. MITCHELL, Weldon

RALEIGH, N. C.
MONDAY, APRIL 17, 1933

TRANSACTIONS

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

MONDAY MORNING SESSION

April 17, 1933

The Twenty-Third Annual Session of the North Carolina Public Health Association convened at ten-ten o'clock in the Ball Room of the Sir Walter Hotel, Raleigh, North Carolina, Dr. C. N. Sisk, President, presiding.

President Sisk: The Twenty-Third Annual Session of the North Carolina Public Health Association will come to order. We will have the invocation by the Reverend Mr. Walker.

Reverend Walker: Our Heavenly Father, we thank Thee that we can feel that back of all the trials of human life there is a spirit of work, and we believe in Thy redemptive plan that human life in all of its aspects will be changed and made better.

We thank Thee that we can have a part in that plan and join hands with Thee in co-working for the betterment of human beings, and we pray Thee as this session opens that those who take part may do so with the sense of Thy heart calling us servants not only of their fellows but of Thine.

And we thank Thee that we can serve Thee in so many ways, and we thank Thee for the limitless service that is rendered by men like these, as they gather in their meetings to discuss those things that will be for the relief of suffering and the saving of human life and the satisfaction of human need and relief of human pain. Bless then this meeting, we pray Thee, and go with it in all of its sessions.

In Jesus' name I ask you. Amen.

PRESIDENT'S ADDRESS

Dr. C. N. Sisk, Rockingham

The application of knowledge of the bacterial cause of disease has increased life expectancy from thirty years at the time our country gained its independence to sixty years at the present time.

Realization of the preventability of disease brought into being the practice of preventive medicine which is now established as a public function and responsibility.

The final report of a committee of forty-eight members created in Washington in May 1927 for the purpose of making a five-year study of

the cost of medical care, and numbering among its membership twenty-five outstanding physicians, is indicative of the attitude of the medical profession toward public health service. In this report we find as follows: "Public Health Service should be adequately supported. All parts of the country should be provided with the basic public health activities, namely: (a) the collection of vital statistics; (b) the control of water, milk and food supplies; (c) the control of sanitation; (d) the control of communicable diseases, especially tuberculosis and venereal diseases; (e) the provision of laboratory service; (f) popular health instruction; (g) the promotion of maternal, infant and child hygiene, including school health service; (g) the organization of other special services when needed for the prevention and treatment of malaria, hookworm and other diseases which constitute special health problems.

The committee makes the following recommendations: "Public health service should be extended under full time trained health officers, employed by local or state government to all areas which are now without such service, as rapidly as qualified personnel are available. The tenure of office of health officers and their staffs should depend entirely upon administrative and technical competents."

A committee of this size considering a subject of such magnitude could not be expected to reach a unanimous conclusion, consequently a minority report was submitted by eight physicians from private practice and one layman. The favorable expression toward public health service in the minority report is even more emphatic than that of the committee as a whole. In the minority report we find this statement: "We are in full and hearty accord with the majority in its recommendations for the strengthening of the public health service. We emphasize especially the following points: (1) the need for more adequate training of medical students in public health matters; (2) the elimination of politics from public health administration; (3) improved standards in public health services to make them more attractive to able men; tenure of position should be more secure and remuneration should be increased."

It has been said of North Carolina that she was a valley of humility between two mountains of conceit. She had the potentialities in natural resources and good citizenship, however, to assume a position of progressive leadership when circumstances permitted. Awakening from her lethargy she began a march of progress and today we are all proud to claim her as our native state.

The particular activities that have advertised her to the world are her accomplishments in schools, roads and public health.

One had to live in rural North Carolina previous to and during the first few years of the present century to appreciate the poor school facilities for operating a three or four months free school, frequently taught by very incompetent teachers, the impassable roads often requiring the

rural dweller to lay in supplies for the winter before travel became impossible.

Improvement in education since that day has been phenomenal. We still rank far from the top, however there are now several states to be thankful for. We have a wonderful system of consolidated elementary and high schools in every county in the state, representing an investment of $110,000,000.00 in buildings and equipment. The state will finance an eight months free school with an enrollment of 866,000 children, 250,000 of whom are transported a total distance of 118,000 miles each school day in 4,400 school buses. Twenty-four millions of dollars have been spent in building our state institutions for higher learning and over $5,000,000.00 have been spent annually in their operation. Our State University is one of two southern universities holding membership in the National Association of Universities. Its standing was illustrated to me recently by a statement from a teacher in a highly endowed northern college that his school accepted students without examination from only four colleges. Three of the schools named by him were outstanding eastern universities and the fourth was the University of North Carolina.

We are justly proud of our State Highway System, representing an investment of $190,000,000.00 and comprising over 10,000 miles of first class roads, nearly 6,000 miles of which have some type of hard surfacing. In addition there are 45,000 miles of lower class roads maintained in good condition by a very efficient State Highway Department.

At the present time the state has practically complete control over our schools and roads and is administering them more efficiently, more economically and more uniformly than could be done by each individual county.

The present state appropriation for health work exclusive of the State Laboratory of Hygiene is $290,000.00 as compared with $16,943,000.00 for common schools and $18,160,000.00 for roads. Our revenue commissioner recently made a statement in an article in the *United States Daily* that 31.3c of each tax dollar was spent for education, 20c for highways, exclusive of debt service and .7 for public health.

I am not critical of one penny spent in the development and operation of our schools and roads. It does seem to me, however, the importance of public health work demands more equitable support from our state government.

Public health may be spoken of as the forgotten man of the triumvirate.

North Carolina pioneered in the development of full time county health work and for a number of years out-ranked all other states in this capacity. Today she stands 10th in percentage of rural population under full time health supervision.

There are thirty-three of the one hundred counties comprising 40% of the area and 55% of the population receiving the benefits of a full-time health department of some dimension and sixty-seven counties with 60%

of the area and 45% of the population without full-time health work of any kind.

Local control may be responsible for delay in expansion and many of the short-comings apparent in its practice.

Whether or not a county has a health department, as well as the type it has, reflects the sentiment of the controlling political influence. As a result two-thirds of our counties do not have a health department and some so-called are of little value when measured by the standard of approved public health values.

North Carolina was the first state in the union to promote public health work as a full-time practice. Having no precedent to guide us, we established a policy of permitting the practice of medicine by health officers for county charges and outside poor under the safeguard of public welfare approval. In some county units this practice has resulted in injustice to the health department, the private physicians and by pauperization to many who receive free medical care. It has practically destroyed their usefulness as institutions for the prevention of disease. Much of this work does not merit charity nor the condition justify the time of the health officer. This practice is not permitted in any other state in the union, however, if properly controlled the institutional practice and a limited amount of outside work can be done in small counties without disrupting the health program.

Public health work is a specialty requiring workers fitted by natural endowment and special training. The field of public health has limitations governed by the rights of the professions and subject to abuse by the illogical reasoning of a misinformed public.

The policy of the State Board of Health in delegating direction of county health units to county boards of health, while making financial contribution under a contract limiting the activities is in effect dual lack of control and fails to furnish much needed and greatly desired moral support and leadership from a higher authority in executing a legitimate program of health work.

Our county boards of health are composed of leaders in the community, but the majority influence is the viewpoint of the layman. The membership is generally without time or inclination to make sufficient study to grasp the intent and purpose of a health department as understood by the trained health worker.

The State Board of Health is the only medium through which universal and standardized health work can be administered.

Methods of communication and travel of ages now in the dim past necessitated the division of our state into small political units. Her one hundred counties vary in area from Chowan with 165 square miles to Roberson with 990 square miles, and in population from Dare with 5,202 to Guilford with 133,000. There are sixty-one of our counties with less than 30,000 population and twenty-three with even less than 15,000.

Many of our counties are too small and too poor to warrant a complete health unit. Inequality in area and population difference in tax rates and fluctuation of political control are some of the reasons why a plan of combining two or more counties into a health district is not practical, unless workers whose time is divided between counties are paid entirely by the state.

There is only one way under existing conditions to make public health work a universal standardized commodity, with justice being done to the interested professions and with assurance of satisfactory working conditions and permanency of office to deserving health workers.

The establishment of health districts based upon area and population, each district to be under the supervision of a well trained health officer and manned by subordinate employees up to a certain minimum, employed, trained, directed, paid and discharged by the State Board of Health. Ability to deliver a spellbinding oration or write an attractive paper on a technical public health subject are desirable accomplishments, but a well-trained health officer must be able to take a hammer and saw and build an approved privy, inspect a dairy and rate it within a fraction of that of an expert from the U. S. Public Health Service, inspect a hotel or restaurant and give it an accurate rating. Personnel must be sufficient to intensify the work to a degree to merit public approval. The rarefication of work in some of our units because of insufficient workers has caused unjust criticism and lack of appreciation, of public health work. It is better to have no health department than one charged with full responsibility which is impossible to accomplish. The health department program should be purged of all extraneous duties, such as the practice of curative medicine, bedside nursing, garbage collection, etc.

The chief reason for establishing health districts is the small population of many of our counties which if furnished individual health officers alone would cost enough to provide very creditable personnel under a district plan. The salary demanded by a health officer does not justify his engagement in the execution of health measures that can be done as effectively by someone whose training does not demand as large a salary. The work of the health officer should be largely administrative. A capable man can supervise health work for a population of 100,000 or more, whether in one county or several.

The division of our state into thirty districts would give an average of 1,600 square miles and approximately 100,000 population per district. The state's contribution of the basic employees of a health officer and clerical assistant for each district, a sanitary inspector for each 50,000 and a nurse for each 20,000 population can be had under present salary scales for $500,000.00, or 16 2/3c per capita. On this basis a county or district with 100,000 population would receive from the state, a health officer, clerical assistant, two sanitary inspectors and five nurses. This does not approximate the amount of personnel required to meet the

accepted standard of public health service. It would form a stable and effective nucleus during this time of economic distress when it is absolutely and appallingly necessary to reduce expenditures to a minimum. The wealthier cities and counties should and would furnish additional personnel for special sanitation, increased nursing service, school dental hygiene and laboratory service.

Records will show that the State Board of Health and thirty-four counties are now spending $250,000 for field service, in no instance in excess of what would be received under this plan and in very few instances is this personnel now equaled. The addition of the modest sum of $150,000.00 to what is now being spent would give this very excellent service to every part of the state.

A few debatable policies are responsible for disapproval of the whole scheme of public health work by many members of the medical and dental professions.

An equitable program of activities should be adopted and a united front presented in the expansion of public health service.

The establishment of health districts under state control would automatically place the practice of medicine for county institutions and outside poor in the hands of the private physicians. It should be done by the doctors throughout the county by assignment according to convenience of location and limited to the helpless and destitute, for once a pauper, always a pauper.

The operation of public health work as a state function will promote the interest of the medical and dental professions and postpone the day of state medicine. It will assure tenure of office, provide better training and attract more capable workers. It will permit the standardization of programs with closer contact between workers and will pay its cost over and over in lives saved and in the reduction of repeating in schools.

Let us work together for a new deal and we will see North Carolina regain her prestige as leader in the field of public health.

Secretary Mitchell: Mr. President, I have a report here, but as a matter of fact the Secretary's report at this time is rather a perfunctory sort of thing and if it pleases the Association I am going to move that it be dispensed with. You will find the whole of our proceedings in the volume of the Transactions of the Medical Society of the State of North Carolina, and they not only print our proceedings, but they furnish us a reporter, a registrar, and edit the copy, without any of us being bothered with it in any way, and have done this now for twenty-three years, and paid all the expenses connected therewith. Rather fine of the State Society—yes, I would say magnanimous. Don't you agree with me?

President Sisk: It is moved and seconded that the reading of the Secretary's report be dispensed with, and the thanks and appreciation of

this organization be extended to the State Medical Society for its magnanimity and co-operation as above mentioned.

. . . The motion was put to a vote and carried . . .

PRESIDENT SISK: Appointment of Committees: On the Committee on President's Address I will appoint Dr. Epperson, Dr. Armstrong, and Dr. Hege.

For the Committee on Visitors and New Members I will appoint Dr. Carlton, Dr. Williams, and Dr. Harding.

For the Committee on Resolutions I will appoint Dr. Bulla, Dr. McGeachy, and Dr. Britt.

The first paper on the program is "Midwife Control," by Dr. G. M. Cooper, of Raleigh.

DR. COOPER: Mr. President, Ladies and Gentlemen: Before I present my brief, formal paper I want to read an abstract that I ran across last week in the Journal of the American Medical Association from a Japan correspondent. The title of the paragraph is "Proposed Changes in Midwifery."

"The present law regulating midwives was made in 1899; since then there has not been any change, and yet medicine has made remarkable progress in the last thirty years. The proposed new law would raise the position of midwives and also license them to give hypodermic injections, make perineal repair and give injections in case of asphyxia of new-born babies. The midwife school should be raised to a higher status, taking in those who have finished the better girls' schools."

—From a Japan correspondent, *Journal A. M. A.*, April 8, 1933.

MIDWIFE CONTROL

By G. M. COOPER, M.D.

There is no argument about the necessity of midwife control in the State of North Carolina. About one-third of the women in the state are delivered exclusively by midwives. In other words, for one-third of the women in North Carolina every year there is no prenatal service of any kind and no attention at the time of labor, except the assistance that may be obtained from a midwife.

Between the years 1922 and 1929, as a result of Federal funds available under the Sheppard-Towner Law, the State Board of Health spent approximately $50,000 a year in an effort to improve the status of midwives and to promote in general the better care of infants and mothers. During the years mentioned there were four district nurses employed by the Board of Health, under a whole time director of maternity and infancy work. These nurses and the director made an effort to secure the adoption of special rules and regulations governing the practice of midwives by the county boards of health in a number of counties. All told, a total of forty

counties adopted rules and regulations prepared by the State Board of Health and permitted it under the State Law.

On the first of September, 1931, when Dr. Parrott assigned to me the duties of directing the maternity and infancy work for the State Board of Health, with no funds to carry out the inspection service, my first effort was to ascertain, through the medium of the school nurses employed under my division, the present effectiveness of these rules and regulations. We found that a number of counties in which the rules and regulations had been passed, midwife classes held, and an effort made to improve the service, that there had been changes in the county boards of health personnel and that the county officials, including the part-time county physicians, did not even know that they had ever had rules and regulations. In a number of other counties, where the same officials were still in office, the rules and regulations were found to be a dead letter, no effort having been made toward enforcement since the discontinuance of the district nurse work in 1929.

During the spring and summer of 1932 we did a great deal of work in trying to make personal contact with the midwives in a large number of such counties, including some counties that had never had any rules and regulations promulgated. Among other things the nurses found that in a majority of cases the midwives are growing old; their numbers are not being recruited from the ranks of intelligent young healthy women. In some instances they have found a few trained nurses interested in taking up the work, and in a few counties they have found midwives of a high order of intelligence. With a few exceptions, we have found that all of them have an honest desire to know more about their business and to serve their patients better. We found also that in a very large majority of cases the midwives are poorly paid, when they collect at all, for their services, but that more frequently they are paid nothing but promises.

We have found the physicians to be divided into three classes: The first is the class that would repudiate and rule out all midwives all over the State and allow none of them to practice in any way or for any class, no matter how poor. The second class comprises those physicians who do not want to be bothered with the midwife problem, who care nothing about the midwives one way or another, who do not want to be troubled with the poverty-stricken class of patients that depend on the midwives; in short, midwives mean nothing to them one way or another. The third class of physicians we have found to be sympathetic to our efforts to improve the midwife's status, tolerant and generous toward the midwives, who realize that the midwife is a necessity, and that she always will be for a certain class of people, and who manifest a desire to help them in any way they can.

After all these years of experience we concluded last winter that it would be better for the State Board of Health to ask the General Assembly for a law giving the State Board of Health the identical power now held

by each and every county board of health, in which it is stated they have power to make such rules and regulations as they deem necessary for the protection of the public health in their counties. This is one of the most beneficial sections of any law ever passed in any state anywhere at any time. So far as I know, it has never been abused.

The bill which the State Board of Health prepared and had introduced in the House of Representatives by the only physician member of that body is quoted at the bottom of this article. The bill received a favorable report from the Health Committee. The action was unanimous. It was defeated on the floor of the House by a vote of 31 to 28 out of a membershipof 120. One member of the House, after voting against the bill, was heard to turn to his neighbor and ask him to please tell him what a midwife was anyhow. I suppose, because the bill was introduced by a physician along about the time other medical measures were coming up in the House, that some of the members got the impression that it was a bill to forbid the practice by midwives and to force people to employ physicians and to pay the regulation fees for such service.

We still have the same opportunity we have always had of undertaking to get rules and regulations adopted in all the counties and effectively carried through. These rules and regulations should simply undertake to see that the midwife has a reasonable knowledge in the primary essentials of antisepsis, experience and judgment in such work, and that she comply with the simple requirements necessary for the safety of the mother and the baby. Unless such a woman can comply and also satisfy the authorities in any county that she is free from communicable diseases such as syphilis and otherwise in good health, she should be debarred from practice.

The three things the State Board of Health has tried to impress on all the midwives are: *First*, a non-interference attitude in which they refrain from undue handling of the patient; *second,* close observance of danger signs and a knowledge when the patient is beginning to deviate from the normal course; and *third,* when such signs and symptoms appear, to insist upon the family immediately calling a physician.

The rules and regulations will be worthless, as they have proved to be in so many counties, unless the county health officer, or rather the part-time county physician, is in hearty sympathy with the efforts put forth and will recognize his responsibility at all times for executing the rules and regulations.

Following is the bill which the House of Representatvies defeated. We hope that the next General Assembly will be more favorable to health legislation in every way and that this bill, or some similar one, may then become a law.

A BILL TO BE ENTITLED AN ACT TO PROTECT THE HEALTH OF MOTHERS AND INFANTS AND TO REGULATE THE PRACTICE OF MIDWIFERY

The General Assembly of North Carolina do enact:

Section 1: The State Board of Health is hereby authorized, empowered and directed to adopt, promulgate and enforce rules and regulations governing the practice of midwifery in this State.

Section 2: No person shall practice midwifery in this State, except upon a permit granted and issued by the State Board of Health, under rules and regulations which it shall adopt with respect thereto, and upon forms which it shall prescribe.

Section 3: Any person who shall practice midwifery in this State without such permit from the State Board of Health, or who, in such practice shall violate any of the rules and regulations adopted and promulgated by the State Board of Health, shall be guilty of midemeanor, and, upon conviction, shall be subject to a fine of not less than Ten Dollars ($10.00) nor more than Fifty Dollars ($50.00), or imprisonment of not more than thirty (30) days.

Section 4: All laws and clauses of laws in conflict with this Act are hereby repealed.

Section 5: This Act shall be in full force and effect from and after its ratification.

DISCUSSION

President Sisk: Dr. E. M. Harding, of Lumberton, will lead the discussion of Dr. Cooper's paper.

Dr. E. M. Harding (Lumberton): Mr. Chairman, Ladies and Gentlemen: What our President has just said and possibly what Dr. Cooper has brought out in his paper illustrates the need for public health supervision of midwives in every county in North Carolina. The fact that one-third of all the children born in the state are delivered by midwives I think is ample argument for better supervision.

We all know who the midwives are and the type of work they do and we know that in most instances there is no restriction and no supervision whatever as regards their work.

We have had a law, practically the same law that Dr. Cooper read to you, in our county almost as long as we have had a health department. Our midwives have been organized into classes. These classes meet several times each year and receive instruction from the County Nurse and the County Health Officer. Their bags are checked over to determine whether they are carrying the standard equipment which they are required to carry, and we find out whether they have any cases to report and any cases that have not been reported, and get a check on how well they are reporting, and all that.

In this way we have been able to keep up with the midwife situation fairly well in our county.

We are endeavoring now to get as many younger women into the work as we possibly can as some of the older ones die out or drop out for one reason or another, and we have been able to recruit several young women of the better and more intelligent type in the last few years.

I think that is one of the things we all need to do. Frankly, I can't see how we are going to get rid of the midwife problem during our generation unless there is a more radical change in public health education in this country than I see now.

Our midwives I think are fairly competent as midwives go. The main thing we must do, of course, is to try to teach them to recognize danger signals and try not to interfere in a pernicious way, and to let Nature take its course. Then, too, we have tried to impress upon them the necessity of proper reports to the Health Department and I think we have been successful in that, as Dr. Cooper will bear me out from the reports that come into the State Health Department from our county. In fact, the majority of our midwives report their cases more promptly than the majority of the physicians do. They not only report the labor at the time but a great many of them report pre-natal cases on a little form that we furnish them.

Of course, I think, just like Dr. Cooper says, no matter how much work has been done on this midwife situation in a county, if it is just turned loose and the Health Department allowed to go down and there is no further supervision, in a few years we won't have a great deal to show for it. It is something that requires constant supervision. You have got to keep everlastingly at it in order to get results. (Applause)

President Sisk: Is there any further discussion?

Dr. R. S. McGeachy (Greenville): I don't wish to discuss this paper, Mr. President, but we have a gentleman with us that we ought to extend the courtesies due. I refer to John A. Ferrell, M.D., President of the American Public Health Association.

President Sisk: Dr. Ferrell, we are certainly glad to have you with us and extend to you the privilege of the floor. We shall be glad to hear from you at any time. (Applause)

Dr. John Ferrell (New York City): Mr. Chairman, Fellow Health Officers: I am intensely interested in this paper by Dr. Cooper. About the only contribution I am able to make is to circulate over the country and pick up gossip and pass it on.

I have been tremendously interested in the efforts being made in North Carolina toward improvement in quality and competency of midwives. Of course, it is a serious problem. We all recognize that the midwives are not the type of people who ought to be entrusted with the care of women and babies.

In this state one of the County Health Officers several years ago was glad to observe a well-trained colored nurse who had had some special training in midwifery giving instructions to a class of midwives, and further to observe that the county authorities had entered into an agreement to compensate a physician called in by a midwife to deal with any complicated case which might be encountered.

In Great Britain midwifery is a very different thing from what we have in this country. For example, there are definite courses of study which have to be taken involving extensive practice in the delivery of women. In this country there is a movement under way to introduce midwifery on a plan that is being practiced in Great Britain and certain other countries. In fact, a school of midwifery has been opened in New York City.

The nursing profession seems to be exceedingly anxious that in the introduction of midwifery in this country the first requirement be that of the graduate nurse and that the obstetrical or midwifery training be supplemental to that background. They claim that the record of deliveries of midwives compares very favorably with that of physicians.

They would like, of course, for the nurses to have their field of activity broadened to include midwifery.

There are those who oppose this plan of development, however, because they say that if a nurse is given additional training as a midwife and goes out ostensibly to serve the indigent, the poor people who ordinarily now in the South use midwives, it would be only a question of time before they would move out of these poor communities and stick up their shingles in the cities to compete with physicians.

Further opposition to the idea comes from the medical profession on the ground that if the public will supply money enough to pay a graduate midwife, say something like $2500 a year, if that money is allocated to a liquid fund for the use of the Health Department, that a larger number of confinements can be attended by physicians at a nominal cost than the trained midwife will be able to attend in the course of a year.

That is merely the discussion. I am not presenting any opinion on the subject one way or another. I do know that at least two Southern states, in an effort to improve such midwives as they now have and to restrict the practice of those who are recognized in the beginning as incompetent, are taking steps to send a nurse to the school of midwifery, where there will be special training in midwifery work, in the expectation that that nurse will return to the State Health Department and give supervision in better training the midwives in the field and aid the State Health Department in the formulation of regulations for the control of the practice of midwifery. Gradually, in this way, a more competent group of women will be brought into the field.

I thank you very much for the privilege of being here. I always consider this as my home and this group as the group with which I entered the field of public health and I can assure you that it is a pleasure to be here. (Applause)

President Sisk: I can assure you, Dr. Ferrell, that we are many times gladder to have you than you are to be with us.

Is there any other discussion on Dr. Cooper's paper?

Dr. John Symington (Carthage): Mr. President, I am much impressed by Dr. Ferrell's statements. I am familiar with the school of

midwifery in New York City which he has just mentioned. I believe I have a relation on the faculty. And I had already written to Dr. Hamilton that unless matters were improved in our county I was going to request a trained nurse with a postgraduate training in midwifery just as Dr. Ferrell had talked of, because the problem of obstetrics is a great one in the county from which I come.

I see there is a plan to recompense the doctors that may be called in in such cases and I think that is wise, if it can be carried out.

The infant mortality in this country is probably the greatest in the world. We have to go to India and China to get anything to equal the mortality statistics to be found in the United States of America, and it is a serious problem. How to carry it out, of course, with everything in public health cut to the bone and more maternity cases being thrown onto the Public Health Department, is far too much for one man to handle.

I was talking with a specialist in obstetrics a month or so ago and he told me I was doing more maternity work than a specialist, because these cases can't even get midwives, some of them. They have no money to pay midwives, and the midwives only get, as Dr. Sisk has said, a promise. They don't even get four dollars, and their fee is ten.

The doctors won't go out now on these cases unless they are paid. So we are up against a very serious problem that needs the best brains in the state to settle.

President Sisk: Is there any further discussion?

Dr. C. C. Hudson (Greensboro): After several years' experience with midwife control measures such as advocated by Dr. Cooper, I have about come to the conclusion that there is not much we can do with the average midwife that we have at the present time. The service will be poorer. There is no doubt of that. Of course, at the present time, owing to economic conditions, there is practically nothing in it for the midwife.

There is one thing, of course, which midwife control measures do, and that is, they tend to bring more cases, in spite of the evidence that we have expected to the contrary and the idea that some physicians have, to physicians.

From my experience I believe that when we make regulations requiring midwives to call in physicians, for instance, in cases of prolonged labor or where there is any evidence of a diseased condition, and things like that, it tends to make them more careful and to bring the cases to physicians. As evidence of that, for instance, when we first passed our regulations in Greensboro we had been having about one hundred and fifty cases, practically all colored, handled by midwives. The number dropped during the next year to something like one hundred cases—one hundred and five I believe—and it is now under one hundred cases per year that are handled by these midwives.

But, after all, the midwife is only an evidence of a very poorly handled problem from the medical standpoint. As a physician, I regret that it is

necessary for any of our people to have to depend upon midwives, rather than upon physicians for obstetrical service. In the first place, a midwife cannot give the pre-natal care which every expectant mother needs.

Last year we had in Greensboro sixteen deaths from obstetrical causes. Eight of those were cases brought in from the surrounding country that died in hospitals. Eight of them were city cases, six colored, and two white.

Now, the standard, according to the national organization scoring system used in American cities—is that our mortality rate should be less than four deaths per thousand cases. Our white case rate there was about two and a half, two and four-tenths, I believe, per thousand cases. Our colored rate was enormously high. Our case rate there was one to thirty-seven. In other words, obstetrics ranked as a major cause of death with us last year. We had a mortality rate of nearly three per cent, which is entirely too high.

One of those cases was due to abortion in about the third or fourth month, which, of course, we might have gotten by, anyway; two had abnormal postpartum hemorrhages; one or two had infections.

In other words, in connection with a good part of this problem, if we could get the cases into the hands of physicians early, through pre-natal clinics and things like that, we could eliminate practically all those causes of death.

There is no reason for our death rate being higher among colored women than it is among white women. We don't believe it ought to be very much higher. Of course, they have more infections and perhaps there are various things that might lead us to expect the rate to run just a little higher, but it should not be materially different than that of white women.

So that there is no doubt we need better obstetrical care. Anything which tends to make that care better, of course, should be approved by all of us. Midwife control tends to improve it somewhat but it doesn't take the place in any sense of physicians' care and we shouldn't in any way teach them that it does, because if we can get a case under a physician's care early and keep the case under his care until some time after delivery, we know that the mother will get the right attention, and the attention which she should receive.

I am in thorough sympathy with all the moves we can make to improve the conditions we have at present and which are, to say the least, rather horrible among our colored people.

President Sisk: Is there any further discussion? If not, we will ask Dr. Cooper to close.

Dr. G. M. Cooper (Raleigh): Mr. President, I do not want to leave the impression that the situation is a gloomy one at all. We are certainly optimistic about the whole affair, for this reason: Ten years ago there were on record more than nine thousand midwives in this state and so far

as we can gather from the information that is now available there are not over forty-five hundred practicing in the whole state of North Carolina today.

Another thing: the midwives today, with the exception of the older ones who are going out, the dirty and incompetent ones, are more competent than they have ever been before, that is, taking the average through the state.

A third thing is that the infant death rate of North Carolina last year was more than six points lower than it ever had been in the state before, and that bears directly on this whole question.

Those are things that make us look with optimism on the situation, but at the same time, as health officers and physicians, we cannot be content with anything but the very best in this situation.

Just one other thing: until within the last two years there has been an increasing number of women attended by physicians. Last year, in 1932, and also in 1931, there was a slight increase in the number of women attended by midwives as compared with previous years. But the whole situation is optimistic provided we put our best endeavors into the proposition all up and down the line.

President Sisk: Our next paper has a very appropriate title, "Hard Times and the Public Health." It will be presented by Dr. R. L. Carlton, of Winston-Salem.

HARD TIMES AND THE PUBLIC HEALTH

By R. L. Carlton, M.D., F.A.P.H.A.
Health Officer, Winston-Salem, N. C.

From time to time during the last few years some of us have had something to say concerning the relation of the depression to health. A year ago it was evident that the changes in social conditions resulting from hard times had not materially influenced health. We were then in the third year of the depression. We had lost money, were having difficulty in meeting public and private budgets, were hurt in our hopes and our pride, but our death rates did not give evidence that our health had suffered.

Analyzing the death rate, we found that the increase in deaths from certain diseases and at certain age periods had just about been offset by decreases from other diseases and at other age periods. If there had been any tendency toward poorer health it was just about offset by the decline in the birth rate, a lessened proportion of babies and other younger children, and a decrease in the infant death rate.

Another year has passed. We are now in the fourth year of hard times. The proof that the position then taken was correct is more evident.

Meanwhile, there has been a rather widespread effort to use the comparative good health in spite of hard times as an argument against public

health work, and even as against private medical service. It has been said that the experience goes to show that appropriations for public health work can be curtailed without harm, and that sick persons need not call physicians nor go to hospitals. The quarrel that health workers have is with the conclusions that are drawn from the facts rather than with the facts themselves.

There have been fewer deaths. Certain people have concluded that this means there has been no necessity for the expenditures for health protection. To these people, should we not reply with a few questions? Why have a doctor in attendance, since it has been demonstrated by experience that 80 per cent of sick people are going to get well anyhow, whether they have a doctor or not? Why maintain hospitals, since experience has demonstrated that without using the hospitals there is a lower sickness rate and a lower death rate? Why have money spent for preventive measures such as those of public health, since the less we spend and the more we economize in the health department, the lower the death rate? This line of argument is logical and sounds reasonable and appealing to certain people. Their argument has been: "As it has been, it will be!"; that if the sample was good, more of it would be better. If a little relief from hospitals and from doctors and health departments has got us somewhere, as it appears to have done, then more of it would get us still farther.

HEALTH IMPROVEMENT BEGAN PRIOR TO DEPRESSION

What is the answer to the argument? In the first place we have been in the midst of a downward trend of disease for half a century or more—for centuries in fact. There has been a constant trend toward betterment of health conditions, but in the last quarter of a century this trend has been more easily demonstrable, and more readily comprehended. Tuberculosis has been on the decline for about fifty years. The men who are studying the prevalence of the disease, those engaged in the strategy of tuberculosis control, have projected lines into the future based on the experiences of the past and have even predicted dates when the trend line would cross the zero line. This phenomenon would introduce the time when the disease would disappear entirely.

That which we are reaping in the shape of health improvement is the result of forces that began to operate decades ago, in some instances. We are in the midst of the harvest time. The time of sowing was some months, or some years, or some decades ago, and all we can say is that the depression through which we have been passing for several years is calculated to disturb the established trends. That is one of the answers to the arguments of those who have claimed, and still claim, that we can afford to discontinue all kinds of health work, including those of preventive and curative medicine as well; of those who say we will get

well if we wreck the machinery of medicine, and leave the intelligent and educated human beings on their own resources.

Another part of the answer to that assertion is this: That which we have been experiencing since the onset of the emergency is just what we would have experienced had there been no depression. The established trend has not been interfered with. I dare say that Dr. Cooper or any other State Department of Health man who is studying vital statistics would have been quite willing to have told you in the years 1927 or 1928 just about what the death rate would be in 1932. The figures given would not have differed materially from that which experience has determined. Furthermore, in coming to that conclusion, they would not have thought much of what kind of times we were to have, whether hard times or good times. In other words, the trend, the established tendency, the reaping that followed the sowing of years ago has gone on without interruption or change because there has been no great influence from the hard times. In effect that is demonstrable at the present time, and that brings me to the next point.

TIME BETWEEN CAUSE AND EFFECT VARIES

You are exposed to pneumonia tonight and by tomorrow or the next day you have pneumonia. The disease treads on the heels of that which causes it. At the other end of the line, we will say, is heart disease. You have rheumatism and you recover from it, you think, but thirty, forty or fifty years after you develop chronic heart disease. During all the intervening years the cause of the chronic heart disease has been there. It began to operate in childhood but there was no clinical manifestation of the effect of that cause during the whole intervening period. There was a space between cause and ultimate effect of about a half century. The case in which childhood rheumatism is followed half a century later by chronic heart disease represents the extreme of a lapse of time between cause and effect. In but few instances does effect follow close on cause.

We are exposed to tuberculosis in childhood. Long years thereafter, as a result of something else which may be quite unrelated to the first happening, after years of good health, clinical tuberculosis develops. The effect has followed sometimes months, but more frequently years, after the cause that has been responsible for that effect.

Deprivation and want and hunger manifest their effect on different levels. During the World War we had an illustration of the effect of one level. Out of poor nutrition in the German child there came tuberculosis in children and tuberculosis in adults, particularly the adolescent women. That is one level on which the effect of deprivation and want and hard times may manifest itself. Another was that found in Roumania, where there was more suffering, where the contending armies beat back and forth, trampling the people under foot and destroying the resources of the land, causing greater suffering than in any other part of Europe. There

was hunger edema and, as a result, there were various manifestations of lack of resistance to disease. All kinds of diseases eventually increased as the result of nutritional disturbances. Among these was pneumonia in children, as well as in the adult population, though less prevalent there. That is an illustration of an effect of deprivation operating at still another level.

ILL HEALTH EFFECTS OF DEPRESSION BEGINNING NOW

This depression has not been very severe from the standpoint of physical want. We have been hurt in separate ways, in pride, in self-confidence, in the pocketbook, and somewhat in our physical being, but we have been far less hurt on the physical side than many of us consider we have been. Our pride has been so humbled that we are quite certain that we are biting the dust in our every part, although evidence to that fact is not very conclusive. And yet, reports are beginning to come from here, there and yonder that the people in the less favored groups are beginning to feel the effects of these hard times, sometimes in one way and sometimes in another. Evidence that the morrow will hold still more effect, just as we today are reaping the effect of good sowing of a decade or two ago, is not lacking. A decade from now we or our successors will be reaping the poor sowing of this four or five years.

It is difficult to become enthusiastic about a low infant mortality rate when clinicians report that cases of rickets are rapidly increasing. In order to economize, poverty-stricken mothers are nursing their babies as long as possible without supplementing the breast milk with other necessary food. If the health of the future generations must be built upon the rickets, malnutrition and decayed teeth of today, there is every reason for believing that regardless of present morbidity and mortality rates, the depression will sooner or later collect its toll.

Cancer and heart disease appear to show a more rapid increase at least in some communities during the depression than they did during prosperous times. Diabetes, which had a tendency to drop during times when there was enough money in the family to provide insulin and a proper diet for the patient, shows a marked increase in some statistical reports during the past year.

There are reports from some sections of an increased prevalence of pellagra. That this is not yet true in North Carolina we are very grateful. There are other illustrations which might be cited but these are enough to make clear the fact that already over the horizon there begins to appear evidence of trouble ahead. What is going to be our response to the situation? How will our generation and perhaps the succeeding generation respond to the need for public protection and the need for individuals to lead the people into better ways; to train them so they may escape tuberculosis in part; to protect them against tuberculosis but, in greater part, to train them so to live that they will deserve to escape tubercu-

losis. And so with typhoid fever, diphtheria, and nearly every other disease that has engaged the attention of the health workers for the last quarter of a century. There have been results.

PAST ACHIEVEMENTS WORTHY OF PRIDE

The tuberculosis death rate of my city is only one-third as high as it was twenty-five years ago—a two-thirds reduction in the span of a quarter of a century. The rate for the whole state of North Carolina is not quite one-half what it was twenty-five years ago (67.4 in 1932—139.3 in 1914). That is a performance, an accomplishment that all people who work in public health, who work against tuberculosis, all who bend their efforts toward health education can be proud of.

There has been greater improvement still in respect to typhoid fever prevalence and nearly as much in respect to diphtheria. How are we going to respond to that? Are we going to find in it an excuse for being faint-hearted? Is it not rather a stimulus to greater endeavor? Is it not rather a stimulus to those who render the service and do the work to continue further, to those legislators who provide the laws and to those counsellors who furnish the funds? Should they not be urged to carry on rather than to quit in the face of this emergency? If we stop now we will not only have a break in the course of time, an interruption in the steady onward progress toward protection against these diseases, but we will slip back and pay the penalty of any interruption that we may indulge ourselves in.

EXPENSE OF HEALTH WORK LOW

We have heard public health work referred to as a luxury. I wonder if it is so. We have been told of the millions that were spent in this state and every other state for the care of those who are mentally sick. I have heard that of every dollar of tax funds spent in the State of North Carolina nearly five cents goes for curative care or custodial care of those who have developed mental diseases, some part of which might have been prevented. As against that there are seven-tenths of one cent spent for prevention and all the work done under the observation and direction of the State Health Department, which is not for the prevention of one disease but of all diseases, and not for the prevention of diseases only, but for the promotion of all physical and mental health and well-being that can be brought about. Prevention in the degree which we have costs seven-tenths of one cent as compared with five cents for the care of something that might have been prevented. We spend more than half of our total expenditures on roads, while, from the standpoint of the amount involved, health protection expenditures is one of the most trifling and unimportant items in the appropriations made by the legislature of the State of North Carolina. Large expenditures are made, as is always the case, for the much more expensive process of curing and caring for the sick while prevention has been neglected. It is prevention

that is economical. It is a method of cure that constitutes the luxury, and this is no time for the people of this state to indulge in luxuries. If they, as a consequence of warped ideas and carelessness, neglect the support of the institution of prevention, they will pay, and instead of paying at the rate of seven-tenths of one cent they will pay at the rate of dimes and dollars and hundreds and thousands of dollars.

Illness must be paid for. That is inevitable. Before the legislature of this state, the city councils, or any other appropriating body, the only question for debate is how they will pay and what they will pay. Will they pay for prevention in mills or will they pay for developed illness in dollars and in tens and hundreds of dollars?

HEALTH WORK IS GREAT ECONOMY

We are in the midst of an actuality. In the language of Grover Cleveland, we are confronted by a condition, not a theory; the depression which has hurt our pride, which has made some so humble and others so hopeless, has created a necessity for clear thinking. During the period which immediately preceded it we could proceed with recklessness and do foolish things. It seems that now has come the day of reckoning. There was nothing to ripen our judgment, nothing to train us in clear thinking. Now, we are in the midst of a situation where the obligation is to think straight, to burn out the dross and leave the gold, to discard the superfluous and wasteful and hold to the needful, to discard the expensive and hold on to that which is economical.

If there is anyone that needs courage to fight and confidence in his work during the present economic depression, it is the health officer. With the need for public health services becoming greater each month, and the demand for lower taxes becoming more general and determined each day, most health officers are confronted with a most discouraging outlook.

While everyone will readily admit that health is the most valuable possession of individuals as well as communities, there are still many people that are skeptical of the claim that public health within certain limitations is purchasable. Communities, like many individuals, are still inclined to place more confidence in fate than in recognized scientific health measures. On account of the great need for economy, taxpayers and their representatives are willing to gamble on a community's health in order to reduce expenditures. Knowing little about the many essential and effective health activities of a modern health department, many people are apt to believe that at least some of these activities are so-called frills which can be eliminated without endangering the health of anyone.

The budgets of police and fire departments are reduced, if any, with fear and trembling, because the big taxpayers don't want their fire and burglary insurance rates increased and the small taxpayers are more afraid of fire and robbers in their homes than they are of disease and death.

In addition to the ignorance and indifference of the general public in public health matters, the health officer also has to contend with a certain amount of opposition, from which most other city departments are free. Some health officers not only receive very little support from many of their medical friends but are actually being opposed by some of them who are sincere in their belief that the work of the health department may be materially curtailed without jeopardizing the health and lives of the people. Having the opposition of many and the support of only a few does not end a health officer's worries. His real troubles begin when, on account of reduced budget, he is compelled to reduce or abolish some of the health services. If he decides that certain services and certain employees can be spared with the least harm to the community, he is apt to be accused of unfair and inefficient action by the same individuals and organizations that demanded a drastic budget reduction.

The health officer of today is "on the spot." If he opposes the curtailment of vital health services, he is accused of being unsympathetic with the hard-pressed taxpayer, and if certain health services suffer due to a forced reduction in his budget he will be accused of making the saving in the wrong place. Regardless of the consequences to himself, every courageous and conscientious health officer must continue to fight for those whose health and lives are at least partly dependent on the efficient, unselfish and fearless administration of the health department.

We stand with our hands out asking for support by public funds for the continuation of a cause which has made good as no other cause has in all human history. Never since the world began has there ever been rendered an accounting of stewardship like that which health people are able to render. We don't feel as yet the consequences of the economic crisis, but if want continues to grow there will come a time when the consequences will not only be registered in the bodies, the minds and the spirit of the people, but they will be so plainly registered that there can be no mistake about them and the result will finally blossom out as disease, disease which might have been prevented and which, had it been prevented, would have saved money. Disease which could have but has not been prevented will be expensive.

The burdens of taxes, burdens of want and woe, of deprivation and sorrow, burdens of developed disease that might have been prevented, will be the penalty we will inevitably pay if we permit an efficient public health machine to be wrecked. Lower taxes can never justify higher morbidity and mortality rates and every health worker must be guided by that principle.

DISCUSSION

Dr. C. W. Armstrong (Salisbury): Mr. President, Ladies and Gentlemen: I have been coming to these meetings for nigh onto twenty years and I have heard Dr. Carlton present papers at a number of these meet-

ings. As usual he has given us something that is very much worthwhile. He has given us something that we can take home to our people, something that we can use as an argument for increasing public health service.

I think that possibly all of us were to a certain extent familiar with the facts which Dr. Carlton brought out, but few of us are able to amass those facts and put them into language so convincing as Dr. Carlton has.

Let me say, Dr. Carlton, your paper has been helpful and I feel that every man and woman here interested in public health work in North Carolina will be benefited by having heard your paper.

I can't add anything to what you have said, Dr. Carlton, except that I think possibly I know a little bit more about hard times in public health work, personnally, than you do.

There were two points you brought out which I think should be stressed. The first is the fact that the present trend or the trend up to the present moment in public health matters in the state is not an accurate picture of what we may expect in the future.

A health officer who goes before an appropriating body or before any gathering in his community and says to the people that a certain epidemic has taken place and he would like for them to do certain things in order to prevent a second epidemic, is not worth much to his community. The thing that a man is paid for is to be able to point out to the people whom he serves potential dangers and to say to those people, "These methods are necessary in order to avoid those dangers."

I think that that point should be stressed a great deal in our home communities where we are working because a great many of the members of the body politic are disposed to take facts as they exist now and make use of those facts against appropriations for public health work. They say to us, "Conditions have been good, in spite of the fact that you have had your budgets decreased, in spite of the fact that you have had your forces crippled, as you say." But the fact you have brought out, that these conditions are not going to continue to exist, to my mind, is a very important thing.

The second thing I want to stress is the fact that the cost of public health work in North Carolina as compared with other governmental functions has been ridiculously low. The President in his address pointed out to you the immense cost of the roads and school systems in North Carolina, of which possibly all of us are proud, but there is a reaction beginning to set in throughout North Carolina now as far as roads and schools are concerned. Some people say, "Well, we laughed at Virginia, but now Virginia is laughing at us, because they paid as they went."

As I say, there is a reaction setting in against roads and schools on that account because they say if we had not been quite so progressive, if we had been willing to go a little bit slower, we wouldn't have gotten into debt so far and we wouldn't be having the hard times we are experiencing now.

Whether those things are true or not it is not my purpose to discuss, but I do believe that there is a very minimum amount of criticism of public health work in North Carolina on account of what it has cost, and I say without fear of contradiction that no department of the government of North Carolina—and I don't mean to disparage at all any of the service that any of those departments have rendered—has rendered as much service at so little cost as the public health department of this state, and I think that fact should be driven home to our appropriating bodies.

I can't offer any suggestions, except this: a number of you probably are baseball fans and you know that every spring there is a crop of "holdouts" for more salary. Babe Ruth is a classic example. There is an annual ballyhoo between Babe Ruth and Colonel Ruppert about Babe Ruth's salary, and I think any of us would be glad to take the difference between the salary that Babe Ruth asks for and what he actually gets. But that takes place every spring.

Not long ago someone asked "Nick" Altrock, the famous humorist with the Washington team, if he was a "holdout" this year and Nick promptly said, "Hell, no! I'm trying to hold on." (Laughter)

This is the thing I think that we must try to do, hold on, in the hope that conditions are going to get better and that we are going to be able to render the same type of service we have rendered in the past. And, Dr. Carlton, your paper has certainly enabled us to use some argument in a way to hold on. (Applause)

President Sisk: Is there any further discussion of Dr. Carlton's paper? If not, the next paper, "Contact Study and Home Care of Open Tuberculosis," will be presented by Dr. W. F. Thornton, of Sanatorium.

SOME PRACTICAL ADVANTAGES OF TUBERCULIN AND ITS STATUS IN TUBERCULOSIS WORK

By W. F. Thornton, M.D., Sanatorium, N. C.

The morbid condition of our present economic life has no doubt been cause for each of us to wonder how it will reflect upon the incidence and death-rate of the present-day trend of tuberculosis. That the widespread suffering and deprivation are conditions that contribute to an increase in this disease cannot be denied, and I feel that we must concede not discouragingly the probability of this unfavorable prospect. Just how soon and how much such undesired results can be determined, is more or less a matter of conjecture as yet. Many of the tuberculous infections of today will develop into disease ten to fifteen years hence, and it will be considerable time yet before we can measure any unfavorable trend accurately. We have reason to feel encouraged however in that the public is far better educated today with respect to this disease, and this should counteract much of the ill effects that will tend to come of the present economic crisis.

Out of past experience has evolved the belief that the greatest that can be accomplished in tuberculosis work is through a systematic study of contacts and control of known spreaders of disease. These two phases of work are so closely allied that we cannot logically pursue one without equal consideration of the other. And in this field of work, as in that of public health, we necessarily have to enlist the good will and interest of the thousands of practicing physicians. Tuberculosis field workers and those in public health have contact with only a small percentage of the innumerable cases that daily seek the services of these doctors, without whose support and co-operation the crusade against tuberculosis would be seriously handicapped.

Much has been accomplished in recent years that now facilitates a more methodical approach in the study of this disease, especially as regards childhood tuberculosis. In the forefront is tuberculin for skin testing, and in the field of childhood disease, the tuberculin test perhaps deserves greater prestige than does the Schick test in the pursuit of diphtheria study. Without tuberculin, the field workers would really accomplish less than one-fourth of the present results at much greater time and expense. It could well become an indispensable agent in the hands of every practicing physician who would take the means of acquainting himself with it. In the study of contacts and of children in large groups, the tuberculin test can cull out large numbers who would otherwise have to be given expensive time-consuming examinations.

Much has been said for and against the value of tuberculin testing, but the criticism we hear of it today is from those poorly informed regarding its use. There are few who yet believe that because a large proportion of adults have sustained a tuberculous infection, they will react to the test, thereby making it useless. Likewise, the field worker often has reported to him that the test may aggravate a disease that already happens to be present. These poorly founded ideas are of minor significance and need be given little or no concern with those interested in the proper usage of tuberculin.

It should be realized that tuberculin can be used in almost any dilution, ranging up to 1:1,000,000, or even greater. A dilution of 1:1,000, however, takes precedence over any other in routine work, because it is too weak to aggravate any disease already present, yet it is strong enough to cause reaction in those sufficiently infected to warrant examination. In routine work, 1/10 of one cc. of the dilution is injected between the skin layers and an interval of 48 to 72 hours is given for the maximum reaction to appear. Intensity of the reaction will vary according to the extent of infection as a rule. A prolonged intimate contact results in heavy infection that is usually followed by the more intense reactions. The practicing physicians and health departments who wish to keep tuberculin for use will find the 1:1000 dilution preferable for routine testing of children and nearly all adult cases.

Although the Von Pirquet is hardly as sensitive as where given intradermally, it has many advantages in convenience that perhaps make it more satisfactory for the average doctor to use. Health departments and those desiring to skin test large groups of children, will probably find the Manton test preferable to the Von Pirquet, because it can be given more rapidly and a properly measured dose can be injected exactly as necessary. Tuberculin can be obtained from the State Sanatorium, and it should be kept sterile in the ice chest, and not retained for use longer than three to four weeks. It may occasionally happen that the private physician without tuberculin when needed to skin test could arrange for this at the health department.

The value of tuberculin is supreme when used to rule out tuberculosis, whereas, its value to confirm diagnosis is very limited. The physician would find it a quick inexpensive method for ruling on tuberculosis in many routine cases of questionable pulmonary disease. There has not been sufficient skin testing of adults in North Carolina for an accurate estimate of the percentage of reactors, but we could safely assume that it would be somewhat less than 50%. On the basis of this and the skin test, the physician could easily rule out tuberculosis in approximately one half of all cases coming to him with pulmonary symptoms. The test is simple and inexpensive and can be given with such facility and ease that it could be used routinely to dispense with other more expensive and time-consuming measures.

In the field of childhood tuberculosis, it is an indispensable agent for culling out contact cases in whom examination and X-ray are warranted. Were it not for the tuberculin test, it would be necessary to X-ray all children before one could declare them free of serious infection, whereas, by first skin testing any group of children, the majority who will not react to the test can forthwith be eliminated from X-ray or other examination for tuberculosis. The test has been given during the past six years to 122,000 school children in North Carolina, 16%, or 19,500, who reacted, were examined and X-rayed. More than 103,000 who did not react were therefore free of infection, making examination unnecessary. The greatest usefulness, then, of tuberculin is not solely to find those infected, but to cull out that larger percentage of non-reactors who need no examination for tuberculosis.

It will be assumed that the doctor, after discovery of a new case of disease, will first choose to send the patient to a sanatorium, provided the case is a suitable one. Then in the set up of measures to prevent spread of the disease he will be particularly concerned with the younger members of the household because of their more intimate contact and the greater danger of infection to them. It often happens that many of them are already heavily infected and should be guarded against further infection to avoid overwhelming of their resistance. All members of the family, including any servants or outside contacts, should first be skin tested, and

the physician should feel quite free to make this request of them. Also he should feel entitled to a fee for his services in this connection. Having skin tested all contacts, the doctor will find that very likely all family members where the disease has been present for any period of time will give a positive reaction, but whether or not outsiders will react will depend of course upon the extent of contact they have had. All children under 16 to 18 years of age who react should be X-rayed. A careful history, physical examination, and temperature record may possibly make X-ray unnecessary for some adults, but this should be advised if there is any uncertainty at all, and especially if the additional expense of it is not prohibitive. In many counties public health is available to the needy cases, and both the welfare and public health departments will frequently find it necessary to co-operate with the private physician in the management of those unable to pay.

It is now becoming the better part of wisdom to depend less upon clinical and physical findings and more upon the X-ray diagnosis of early disease. The doctor who frequently dismisses cases without X-ray will soon discover, to his chagrin, that they have had X-ray diagnosis elsewhere, for these neglected cases do often fall into the hands of the more careful diagnostician who now gives to the X-ray its well-deserved measure of supremacy in early diagnosis. To wait until there are clinical and physical signs to depend upon for physical diagnosis, is to wait not only for the communicable stage, but most usually for a hopeless recovery. Absence of symptoms never means absence of early tuberculous disease. The reason that nearly half of all cases diagnosed have reached the far advanced stage is not solely the fault of the doctors, but principally because the victims wait for manifest symptoms to convince and convict them. Then, not only they themselves, but the neighborhood can make the diagnosis. If in our educational endeavor we could banish from the minds of the public that to wait for symptoms is oftentimes later to forsake all redeeming hope for recovery to a useful life, we shall have made a far-reaching advance in the fight against the disease.

DISCUSSION

President Sisk: Dr. McCain, will you lead the discussion?

Dr. P. P. McCain (Sanatorium): This subject of examination of contacts in tuberculosis is so important that the National Tuberculosis Association has this year adopted as its slogan, "Tuberculosis—From Whom Did He Get It? To Whom Has He Given It? Examine and Protect the Contacts."

In spite of the splendid reduction in the death rate there are still enormous numbers of people that are dying from this preventable and curable disease, and if we ever expect to reduce it to one of the minor causes of death it is necessary for us to find the cases while they are in the minimal stage and before they become contagious.

Heretofore we have been using the old method of taking the history, giving the physical examination, and examining the sputum. But the great majority of early stage cases of tuberculosis don't have any symptoms. They feel perfectly well. They look perfectly well. We don't realize to what extent that is true.

At the Sanatorium Clinic we have diagnosed thirty-nine doctors as having active tuberculosis, and of that number only twenty-three were in the minimal stage; forty-six per cent were in the moderately advanced stage, and thirty-one per cent in the far advanced stage.

So we can't depend upon symptoms to find tuberculosis before it is advanced enough to be incurable and before it is advanced enough not to be contagious.

Neither can we depend upon physical signs. And that is no reflection on the ability of doctors to recognize abnormal physical signs, when I say that.

Dr. Laurason Brown a couple of years ago read a paper in which he reported that nineteen hundred cases, consecutive cases, had been admitted to Saranac Lake from 1920 to 1927 and diagnosed as tuberculosis. Five hundred and three of that number didn't have any abnormal physical signs or didn't have sufficient physical signs for a diagnosis; so if experts like the Saranac Lake folks can't diagnose early tuberculosis on physical examination the rest of us shouldn't be expected to do it, either.

One of the great troubles, too, is that people don't go to doctors for examination and for study until they feel sick. If we are going to wait until people feel sick enough to come to a doctor we are not going to find tuberculosis early and we are not going to stop its spread.

We have to look for tuberculosis among those that are healthy, and the group that is most likely to have tuberculosis is that group who are living in contact with open cases.

So that if the rank and file of the medical profession will make a habit of studying every contact that they can, it won't be very long before tuberculosis can be brought under control.

The private physician hesitates, I know, to urge that patients be brought to him for examination, but when the private physician finds a case of tuberculosis, it is just as much his duty, his obligation, to insist that the other members of the family, including the servants, be studied, as it is for him to do what is necessary to protect the other members of the family when one member has typhoid fever or diphtheria.

The public health authorities can do a great deal towards making it easy for the private physician to insist that the apparently well members of the family come to him for study by urging the necessity of it. And there is no reason why the private physician shouldn't make a charge for this service, as Dr. Thornton said. He is certainly saving the head of that family many times more money by having his family come to him for a study, including a tuberculin test and the X-ray, than by allowing them to

drift along and develop far advanced tuberculosis and further infect the other members of the family, because it costs hundreds and sometimes even thousands of dollars to treat the advanced cases of tuberculosis in his family.

It should be a disgrace for whole families to die out with tuberculosis and we are all familiar with such families as that. There is no excuse for it.

When we find a case of tuberculosis, we should want to protect the others. We should teach the individual the importance of taking all precautionary measures, and emphasize the importance of studying all the contacts, including the tuberculin test, and on all the positive reactors, having a careful history taken, a careful physical examination, X-raying all the children, and, if, the family is able to, X-raying all the adults who react to the test also. If that is not possible you certainly ought to X-ray all those who have any suspicious physical signs or suspicious symptoms and all those who give a strongly positive tuberculin test.

X-rays are expensive but they are not anything like as expensive as financing the care of advanced tuberculosis, and one reason why they are so expensive now is because so relatively few are taken. If all those who need X-ray pictures and are able to pay for them should have them, then the roentgenologists could charge a fraction of what they are now charging, and at the end of a year have a very much better income than they have now. (Applause)

President Sisk: Is there any further discussion of Dr. Thornton's paper?

Dr. Z. P. Mitchell (Weldon): Mr. President, I live in one of the eastern counties where I have been Health Officer now for eight years. We have a large negro population, and I am seeing more tuberculosis this year than ever before.

By the way, I happen to be one of those health officers who can't keep so busy with public health work that he isn't altogether too often called in to practice curative medicine.

As I say, I am seeing more tuberculosis among the negroes in Halifax County than I have ever seen before, and I have no means of reaching these contacts with conditions as they now exist. The way tuberculosis is reported at present, I do not get a record of these reports. They go directly from the physician, where the physician makes them (and, mind you, they are poorly made) directly to Dr. McCain's office, and I do not have any record of them except as I find them when I go here and yonder.

I should like for that to be changed. Perhaps some of the health officers get that information, but I do not. Instead of it being reported as all other reportable diseases are, directly to the health officer and then transmitted by him to headquarters, this is done directly to Dr. McCain's office and the health officer in the county, who is interested in protecting the health of the people and keeping down disease, has no record of those cases that are reported.

I want to know who is a contact, where tuberculosis is occurring, and under what conditions.

That ought to be changed so that the health officers will get this first-hand information, and then if we are privileged to have one of these clinics put on by the Extension Department of the North Carolina Tuberculosis Sanatorium, under Dr. McCain, we could send our nurses to these homes, from these records that we have, and get these contacts out, instead of having any and everybody flocking into these clinics who just have a lot of morbid curiosity.

PRESIDENT SISK: Is there any further discussion?

DR. J. A. MORRIS (Oxford): Mr. President, I should like to ask if it would not be possible for the health officer to make the intradermal test for tuberculosis and get the reactors, and since the examination by the stethoscope is somewhat discounted as a relative certainty, why not skip over that and have all the strong reactors at least X-rayed and the county pay for those, and get the Sanatorium to read those X-ray pictures?

If that were possible, I would be very glad to undertake it in our county. But I do confess that it is only the advanced cases of tuberculosis that I can diagnose, and sometimes I might even miss those.

PRESIDENT SISK: Is there any further discussion?

DR. R. S. MCGEACHY (Greenville): I am from an Eastern county where tuberculosis among the colored people is getting to be a problem, and a big problem. We are getting it in negroes under fifteen, and in negroes from fifteen to twenty and twenty-five years of age. They are just dying off from it. We had ten more deaths from tuberculosis in our county last year than we had cases of typhoid fever.

I can carry you to places right now within six or eight miles of the county seat where tuberculosis exists—I can carry you to one house where there is a person in bed with tuberculosis, a house of three rooms, with ten people sleeping in the house. In that house of three rooms there is a girl eighteen years old dying of tuberculosis.

I don't know what to do with it.

There is something else I don't know what to do with. I don't know how to stimulate any interest in tuberculosis. If you get it in your cow you can get your people interested in that, but I doubt if I can get any interest in it when it occurs in human beings. We just can't do it. I don't know why it is, but it is tragic.

We tested in our county—Dr. Parrott knows this—some years ago every cow there was in the county, cow and calf, and we found four in the entire county that were infected. Immediately after that we tested about twenty-five hundred children and found that one out of four was infected.

Still it made no impression at all on the citizens of that county.

I will admit that I don't know what to do but it is getting to be, amongst the colored people, a very serious problem. At the rate it is going, I don't know what it is going to do in my county because, as I say, there are three or four homes that I know of right now where people are sleeping, ten in three rooms.

A man was in my office three days ago with tuberculosis. I asked him how many were sleeping in the house that he slept in. He said six. I asked, "How many rooms are there in the house?"

"Two," he said.

I asked, "How many sleep in the bed with you?"

"Two," was the reply.

There are two people sleeping in that bed with him, and he is an advanced case of tuberculosis.

Now, what can we do about it? We can't get any appropriation. We can't get them to the Sanatorium. We have no place to send them, and I wish this thing could be brought to the citizens of the county so that we could have something done. But how to stimulate any interest in the subject is more than I can tell. I sometimes feel like I am absolutely off in that. I believe you can stimulate interest in anything else more than you can in that and in my opinion it is one of the most dangerous things facing the citizenship of this state today. I am confident it is in my neighborhood. Just how to handle it, I will admit, I don't know, but as I say it is getting to be a problem. You can get people vaccinated for typhoid fever, you can get them vaccinated for diphtheria and all those things, but you just can't get them to take any interest in tuberculosis. At least, I can't.

Dr. E. R. Harding (Lumberton): I would just like to ask Dr. Thornton if he can give us any information as to the comparative number of colored children they found infected in the X-ray examination and the number of white. In other words, how many colored were there as compared to the whites that showed infection after positive tuberculin tests and X-ray diagnosis?

President Sisk: Dr. McCain!

Dr. P. P. McCain (Sanatorium): May I make a statement about the reporting of tuberculosis?

We have taken that matter up with the State Health Department and they are co-operating with us to the fullest extent, and I hope that bill will go through this year requiring reporting directly to either the local health officer or to the state health officer. If they are sent to the state health officer, they will be sent back to the county health officers.

Is is entirely satisfactory with the Sanatorium authorities for the doctors in any county to report their cases of tuberculosis directly to the County Health Officer and for him to forward the reports once each

month to the Sanatorium. In a few of the counties the matter is now handled in this way.

I should like to ask Dr. Hamilton just what the status of that bill is at present.

I would like also to say that we are now sending the reports to Dr. Hamilton at the end of each two weeks, and Dr. Hamilton is sending them out to the county health officers. We think that the county health officers should by all means have these reports, have them as soon as possible, and that they should follow them up. They should also be willing to give the tuberculin test for any doctor in the county who wants his patients tested. But I think unless the doctor requests it, the health officer should see the doctor and ask him if he doesn't want to do it, and if the doctor will not do it himself, why, I think that then the health officer's function is to do it—and I hope that procedure will be followed.

The Extension Department of the Sanatorium and the State Tuberculosis Association together will furnish free of charge tuberculin either in the little individual Von Pirquet tubes or we will furnish the intracutaneous, one to one thousand, dilution to any of the health officers in the state. And as Dr. Thornton mentioned we would like for you not to keep that tuberculin too long. We will give you a fresh supply if you will write for it and ask to have it sent to you. That is all you need to do to get all the tuberculin that you need.

In regard to the percentages, we found surprisingly small difference in the number of colored children and in the number of white children that showed positive tuberculin reactions. In round numbers, it was fifteen per cent in the whites and eighteen-plus, nearly nineteen per cent, in the colored. But, of the positive reactors, pretty nearly twice as many colored children showed demonstrable disease as the white children.

We think that is because they are usually thrown into very much closer contact, being huddled up together, and because they don't have anything like the same hygienic surroundings as the white people do.

President Sisk: Is there any further discussion? If not, Dr. Thornton, will you conclude?

Dr. Thornton: Dr. Mitchell raised the question a while ago regarding the advisability of making reports of tuberculosis to the health departments. He may be aware of the fact that only recently there was some question regarding the introduction of a bill in the Legislature to make it mandatory for the doctors who discover new cases of tuberculosis to report them to the health department of the county instead of the State Sanatorium. I think, however, that has been dropped for the time being, and for the same reason it was not passed in the Legislature. But the Sanatorium will be glad to furnish this on request of any Health Officer.

Dr. Morris suggested that since the physical signs on examination are so illusive, why not simply omit that and make an X-ray picture of all

cases that react to the tuberculin test, particularly those that have the more vigorous reaction?

That would probably eliminate a good deal of time of course but there are some advantages in making physical examination of the patient aside from finding tuberculosis. A great many of these cases that you examine have some defect that might never be picked up were it not for the examination that is given at the time we make the examination of the lungs.

For instance, a child out in the rural sections that has not the advantages of a health department, and doesn't go to the physician, may have a heart lesion, he may have bad tonsils, or some other serious defect that needs to be looked after. So there is quite an advantage in making the physical examination, even though you know that you may easily overlook an early tuberculosis lesion in the routine examination.

The question was asked just now regarding a comparison of the positive cases among the colored and white children on X-ray. I am not certain regarding the figures on that. Dr. McCain can tell us about that. He probably has that information on the tip of his tongue. But I know that the positive cases found on the X-ray are much higher among the colored children than among the white children. That is true also with regard to the tuberculin skin test among the children.

Dr. McCain, I am sure, will be glad to answer your question if you want to know that, Doctor. (Applause)

President Sisk: It has been stated—Dr. Parrott can attest to the fact—that all the cows in Lenoir County have been tested for tuberculosis. I should like to ask Dr. Parrott if all the dogs in Lenoir County have been tested for tuberculosis. (Laughter)

Ladies and gentlemen, that ends the program for this morning. If there is no further discussion, we will adjourn until two-thirty this afternoon.

. . . The meeting thereupon adjourned at twelve-thirty o'clock . . .

MONDAY AFTERNOON SESSION

April 17, 1933

The meeting convened at 2:30 P. M., Dr. C. N. Sisk, President of the Association, presiding.

President Sisk: The first paper on the afternoon program is "Maternal Mortality in North Carolina, Preliminary Report," by Dr. J. H. Hamilton.

MATERNAL MORTALITY IN NORTH CAROLINA

Preliminary Report

By Dr. John H. Hamilton and Dr. D. F. Milam

A condition which kills more than six hundred citizens of North Carolina each year is important. This importance is accentuated if the citizens are in those age groups for which the State has completed its investment for their education and training. The major portion of this group are just entering upon a life of usefulness and productivity. Further emphasis is added by the fact that these individuals are killed in the act of creating new life—the most valuable service which can be rendered to the state. This, briefly and inadequately, is a statement of the maternal mortality problem in North Carolina.

In an effort to determine the cause, and with a hope that some useful suggestions may be justified, we are attempting a statistical study of this condition. It is planned for this study to cover a five-year period. The present report is intended only as a merely superficial preliminary survey.

Maternal mortality rates for North Carolina are more than twice as high as those for communities where rates are considered good. Our rates of approximately 8.5 per 1,000 live births are 30% greater than those for the United States Registration Area, which are approximately 6.5, as compared with the rate of 5.6 for Canada, 4.2 for England, 3.0 for Sweden, and 2.5 for Denmark.

MATERNAL MORTALITY IN EIGHT STATES AND IN NEW YORK CITY

	1923	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*
Arizona	5.1	5.0	4.5	7.0	5.8	4.8	4.6	4.7
California	6.7	5.9	6.0	5.5	5.8	5.6	5.2	5.3
Nebraska	5.8	6.3	5.7	6.6	5.9	6.0	5.4	5.3
New York (excl. of N.Y.C.)	6.3	6.0	6.1	6.1	6.3	6.4	5.5	5.6
Ohio	7.1	6.3	6.6	6.8	6.2	6.2	6.6	5.5
Pennsylvania	6.3	6.1	6.2	6.1	6.1	5.8	5.8	5.6
Tennessee	8.1	7.5	7.8	6.8	6.8	8.2	8.1	7.9
Virginia	7.3	6.4	6.9	8.0	6.3	7.5	6.5	6.6
New York City	4.8	5.2	5.4	4.7	5.4	5.3	5.1	5.4

The fact that our rates are better than those of some States or countries gives us little cause for gratification.

Considerable confusion exists for definitions of the term "maternal mortality." Some rates are computed on the basis of deaths from maternal causes per 100,000 population. The errors of this method are readily apparent. Rates per 100,000 women of child-bearing age would improve the accuracy of computations on a population basis. A still more accurate idea may be obtained by computing maternal deaths per 1,000 live births. Unfortunately, this method does not take into account stillbirths, miscarriages or abortions. This omission is partly negated by not making corrections for twins or other multiple pregnancies.

TABLE NO. 1
MATERNAL MORTALITY RATES
In North Carolina, 1927-1932

Year	*Rate per 1,000 Live Births*	*Rate per 100,000 Population*
1927	6.6	18.5
1928	8.2	21.8
1929	8.8	21.9
1930	8.4	20.3
1931	8.5	19.8
1932	6.8	16.1

The data which we have been publishing in the annual reports of the Bureau of Vital Statistics tends to indicate the counties in which maternal mortality rates are excessive. There is an element of inaccuracy in these data by reason of the fact that deaths have been assigned to the community in which the death occurred, instead of being charged to the place of usual residence. Our death punch cards have been redesigned so that future tabulations can show both the place of death and the usual place of residence. This will correct the unjustly high rates which have been given to counties that have within their borders medical centers. This change in the methods of tabulation makes it inadvisable for any analysis on a geographical basis until we can include comparable data for two or more years. The population of our counties, and consequently, the births or deaths that occur in any county during a single year, is too small to give dependable rates. Tabulations for 1932 show that twenty-six counties contributed to the maternal death rates of sixteen other counties.

Maternal mortality rates by race, as indicated in Table No. 2, show that the negro rates are approximately twice as high as the rates for white people.

	WHITE			NEGRO			TOTAL		
Year	*No. Live Births*	*No. Mat. Deaths*	*Mat. Rate*	*No. Live Births*	*No. Mat. Deaths*	*Mat. Rate*	*No. Live Births*	*No. Mat. Deaths*	*Mat. Rate*
1927	57,637	311	5.3	25,176	262	10.4	83,330	576	6.9
1928	49,436	382	7.7	24,515	277	11.2	80,887	664	8.2
1929	53,266	402	7.5	23,392	279	11.9	77,164	684	8.8
1930	53,515	363	6.7	22,681	277	12.2	76,717	645	8.4
1931	51,806	359	6.9	22,360	277	12.3	74,743	637	8.5
1932							78,097	529	6.7

An analysis of maternal deaths by cause, as shown in Table No. 3, reveals some rather startling information. During the years 1927 to 1932, inclusive, puerperal albuminuria and eclampsia maintains a strong lead for first place among the causes. In Canada, the rate from this cause, for

TABLE NO. 3

CAUSES OF MATERNAL DEATH

1927 - 1932

	Year	1927		1928		1929		1930		1931		1932	
	Number Live Births	83,330		80,887		77,164		76,717		74,743		78,079	
List No.	Cause of Death	No. Deaths	Rate per 1000	No. Deaths	Rate	No. Deaths	Rate	No. Deaths	Rate	No. Deaths	Rate	No. Deaths	Rate
140	Abortion with septic conditions							27	.3	26	.3	28	.3
141	Abortion without septic conditions			85	1.0			36	.4	29	.3	21	.2
142	Ectopic gestation							7	.09	12	.1	9	.1
143	Other accidents of pregnancy (not to include hemorrhages	48	.5					7	.09	17	.2	25	.3
144	Puerperal hemorrhage	62	.7	66	.8	78	1.0	61	.7	76	1.0	64	.8
145	Puerperal Septicemia	117	1.4	100	1.2	122	1.5	112	1.4	117	1.5	77	.9
146	Puerperal albuminuria and eclampsia	195	2.3	268	3.3	276	3.5	221	2.8	198	2.6	177	2.2
147	Other toxemias of pregnancy							25	.3	38	.5	27	.3
148	Puerperal phlegmasia alba dolens, embolus, sudden death	25	.3	52	.6	38	.4	37	.4	42	.5	25	.3
149	Other accidents of childbirth	104	1.2	92	1.1	110	1.4	109	1.4	85	1.1	69	.8
150	Other and unspecified conditions of the puerperal state	1	.01	1	.01	1	.01	3	.03	0		2	.02
	TOTAL	552	6.6	664	8.2	684	8.8	645	8.4	637	8.5	529	6.7

the years 1927 and 1928, was 1.4 and ranked second to puerperal septicemia, which had a rate of 1.9. In New York, for the year 1931, toxemias of pregnancy had a rate of 1.2 and was second to puerperal septicemia with a rate of 2.2. An extensive study of maternal mortality in England showed that the causes of death in the 4,655 directly due to child-bearing were as follows:

		Per Cent
Sepsis	1927	37.1
Eclampsia	544	11.6
Operative shock, etc.	464	9.9
Antepartum hemorrhage	373	8.0
Postpartum Hemorrhage	296	6.3
Other toxemias,including chorea & mania	279	6.0
Embolism	319	6.8
Abortion	578	12.4
Extrauterine gestation	75	1.6

Our consistently high rate for toxemias of pregnancy is significant.

Table No. 4, giving maternal deaths by cause and race for 1931, reveals the fact that the rates for negroes are significantly higher for practically each cause of death than for the white race. As would be expected, the rate for puerperal septicemia in the negro is more than two and a half times that of the white. Since puerperal septicemia is a good index of the type of obstetrical services rendered, and since 86.7 of white births were attended by physicians and only 28.5 of colored births were so attended, rates for this condition constitute a rather serious indictment for the midwives of the State.

TABLE NO. 4

MATERNAL DEATHS BY CAUSE AND RACE, 1931

	Number of births	White 51,806		Negro 22,360		Total 74,743	
List No.	Cause of Death	No. Deaths	Rate	No. Deaths	Rate	No. Deaths	Rate
140	Abortion with septic conditions	10	.1	16	.7	26	.3
141	Abortion without septic conditions	20	.3	9	.4	29	.3
142	Ectopic gestation	5	.09	6	.2	12*	.1
143	Other accidents of pregnancy: (not to include hemorrhages)	14	.2	3	.1	17	.2
144	Puerperal hemorrhage	42	.8	33	1.4	76*	1.0
145	Puerperal septicemia	57	1.1	60	2.6	117	1.5
146	Puerperal albuminuria and eclampsia	110	2.1	87	3.8	198*	2.6
147	Other toxemias of pregnancy	32	.6	6	.2	38	.5
148	Puerperal phlegmasia alba dolens, embolus, sudden death	30	.5	11	.4	42*	.5
149	Other accidents of childbirth	39	.7	46	2.0	85	1.1
150	Other and unspecified conditions of the puerperal state	0		0		0	
	TOTAL	359	6.9	277	12.3	640†	8.5

*Indian—1.
†Indian—4.

A classification of deaths for the year 1929 by the age of the mother, as shown in Table No. 5, indicates that mothers under twenty years of age are subjected to greater hazards than are mothers between the ages of twenty and twenty-nine. After the mother reaches the age of thirty, the rates increase in each five-year period of the age group.

TABLE NO. 5
MATERNAL DEATHS BY AGE, 1929

Age	*Number Live Births*	*Number Deaths*	*Rate*
10 — 14	93	5	53.7
15 — 19	10,606	63	5.9
20 — 24	22,087	155	7.0
25 — 29	17,244	122	7.0
30 — 34	11,690	132	11.2
35 — 39	8,437	111	13.1
40 — 44	2,874	44	15.3
45 — 49	391	11	28.1
50 — 54	9	1	111.1
Over 55			
Total	77,164	684	8.8

Table No. 6 shows the deaths from puerperal albuminuria in 1929 by age groups. The rates for those under twenty and over thirty-five are appreciably higher than the total rate for this condition that year.

TABLE NO. 6
PUERPERAL ALBUMINURIA, 1929

Age	*No. Births*	*No. Deaths*	*Rate*
10 — 14	93	3	32.2
15 — -9	10,606	63	5.9
20 — 24	22,087	80	3.6
25 — 29	17,244	46	2.6
30 — 34	11,690	43	3.6
35 — 39	8,437	33	3.9
40 — 44	2,874	14	4.8
45 — 49	391	4	10.2
50 — 54	9	0	–

Since it is generally stated that the women of the south marry at a younger age, we have classified in Table No. 7 the age of mothers bearing children in 1929 for the registration area and for North Carolina, both white and negro, and total. There seems to be nothing significant in this analysis and little, if anything, which would tend to explain our high maternal mortality rate.

TABLE NO. 7
BIRTHS BY AGE OF MOTHERS, 1929

No. Births	REG. AREA		N. C. WHITE		N. C. NEGRO		N. C. TOTAL	
	2,169,920	% 100.0	53,211	% 100.0	23,950	% 100.0	77,164	% 100.0
10 — 14	2,657	.1	33	.06	60	.2	93	.1
15 — 19	259,457	11.9	6,709	12.6	3,897	16.2	10,606	13.7
20 — 24	635,082	29.2	15,433	29.0	6,654	27.7	22,087	28.6
25 — 29	546,833	25.2	12,567	23.6	4,677	19.5	17,244	22.3
30 — 34	371,865	17.1	7,388	13.8	2,833	11.8	11,690	15.1
35 — 39	240,124	11.0	6,182	11.6	2,255	9.4	8,437	10.9
40 — 44	78,844	3.6	2,190	2.7	684	2.8	2,874	3.7
45 — 49	7,705	.3	272	.5	119	.4	391	.5
50 — 54	130	.005	5	.009	4	.01	9	.01
Over 55								

In the continuation of this study, it is planned to tabulate and analyze all of the information contained on the death certificates of women who die of conditions related to maternity, and to integrate the information contained on birth certificates which match these death certificates.

DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

Office of Special Agent,
Raleigh, North Carolina.

Dear Doctor:

We have a death certificate signed by you for..... who died....., 193....., of a cause related to pregnancy. Since we are attempting to make a study of maternal mortality in North Carolina, we will appreciate your giving us certain additional information which is not now available to us.

We hope that you will send the needed information promptly in the enclosed official envelope, for which no postage is required.

Thanking you in advance, I am,

Yours truly,
JOHN H. HAMILTON, M. D.,
Special Agent.

1. Was patient referred to you by a physician or a midwife?.....
   Name..... Address.....
2. Trouble with previous pregnancies?.....
   .....
3. Previous abortions.....
   .....
4. At what period during pregnancy was patient seen by you?.....
   .....
   Was patient ill at that time?..... For how long?.....
5. Maximum blood pressure..... Date.....
6. Was patient known to have syphilis?.....
7. Albumin in the urine..... Date.....
8. Placenta praevia?..... Premature separation of placenta.....
9. Excessive bleeding during labor?.....
10. Post-partum hemorrhage?..... Approx. amount of blood lost.....
11. Retained placenta?..... Method of removal?.....
    .....
12. Were forceps used?..... High, middle, low?.....
    What was the indication for forceps?.....
13. What other obstetrical or surgical operation was performed?.....
    .....
    What were the indications?.....
14. Number of vaginal examinations made?.....
15. How long before delivery were membranes ruptured?.....
    Natural, artificial.....
16. Manual or instrumental dilitation cervix..... Artificial.....
    Method.....
17. Duration of labor (in hours).....
18. Was temperature above 100° during labor?.....
    Was the post-partum temperature above 100°?.....
19. What perineal repairs were made?.....
    .....

20. When did acute symptoms develop?.....
21. What care, or lack of care, contributed to patient's death?.....
.....
.....
22. What precautions, in your opinion, would have saved patient's life?.....
.....
.....
.....
.....
23. Was the patient delivered before death?..... Date.....
a. Name..... Physician o rmidwife.
b. Address.....
24. Was child born alive or stillborn?.....
25. Was a birth certificate filed?.....
a. Date filed.....
b. With whom filed—Name.....
Address.....
26. Was pregnancy twin, triplet, or other?.....
27. What was the period of uterogestation at time of delivery?.....
.....
28. Was patient married?.....
29. What was husband's occupation?.....
30. What was patient's occupation?.....
31. Number of children..... (a) Born alive and living.....
(b) Born alive but now dead..... (c) Stillborn.....

In an effort to evaluate the effect of care or lack of care, an inquiry form has been designed, with the aid of obstetricians and statisticians. The complete data, when properly assembled and analyzed, should throw considerable light upon the problem, and will perhaps indicate some definite methods of attack. However, we need not wait to commence or continue our attack on the two most important causes of maternal mortality—puerperal septicemia and puerperal toxemias.

Puerperal sepsis has, since the days of Oliver Wendell Holmes, been recognized as closely associated with inferior care during the puerperium. Although it is now recognized that a considerable number of cases of puerperal sepsis have an endogenous source of infection, we could make a remarkable reduction in the incidence of this disease if we could eliminate the exogenous source of infection. To do this, we must have improved obstetrical practice. The British report lays considerable emphasis on the importance of vitamins A and D in the prevention of this condition. Improved technique and an increase in our knowledge of nutrition will do much to reduce puerperal septicemia.

In order to decrease the annual toll of life incident to the toxemias of pregnancy, more attention must be given to early diagnosis of impending toxemias and more adequate treatment must be given. Blood pressures exceeding 140 systolic and 90 diastolic should be regarded as abnormal, regardless of the age of the patient and whether or not there are other signs of toxemia present. For such patients, immediate hospitalization, or its equivalent, is recommended by the British Commission.

The need for a better understanding of our maternal mortality problem is apparent. Much assistance is needed. Fortunately, every person who is interested in public health protection can help. One tangible method is to promote the collection of accurate information. Complete reporting of birth and death certificates is essential. The securing of supplementary information can be encouraged. The dissemination of facts concerning proper maternity care is most valuable. Something can be done in North Carolina to decrease the hazard which women must now undergo in order to bring new life into the world.

DISCUSSION

Dr. I. M. Proctor: Mr. President and Members of the North Carolina Public Health Association: Dr. Hamilton has presented a most important subject and one that everyone should be interested in. Last fall I approached him on this matter and found that he was already working on it. We had one or two meetings with a large number of men in the state who are limiting their work to obstetrics and gynecology, and he proposed this questionnaire. We agreed it was a good thing to do, in order to get accurate information which we can use in educating ourselves and educating others, in an effort to reduce the all too high maternal and fetal mortality and morbidity in North Carolina.

Along this line, I believe that the statistics gathered by the State Board of Health are intended not only for the members of the Health Association but for the physicians in general throughout the state. If that is so, I do not believe that the physicians in the state are getting the benefit of that information that they ought to have. I believe this questionnaire will help.

First of all, I don't think that maternal deaths ought to be figured against live births. It seems to me that information is inaccurate, and that they should be figured against pregnancies; and in our state, since we are not reporting pregnancies until the fifth month, they certainly ought to be figured against pregnancies after that time or against all pregnancies that are reported. I believe that will be an improvement in the statistics and give us more accurate information.

The second thing in those statistics is: I think we ought to be more specific, and have a column or heading for other accidents of pregnancy and labor. To me it does not now give accurate information, and certainly such information must be accurate for us to get any good out of it.

Third, the term "puerperal," which I believe the Health Association and members of the Board of Health use to cover ante-partum, intra-partum and post-partum conditions, I think should only cover the post-partum conditions. The average practicing physicians understands "puerperal" to mean a thing that happens after delivery. And if he gets these statistics, using the term "puerperal," he does not take into consideration

that they apply to ante-partum and intra-partum conditions as well as post-partum conditions.

These are three suggestions that occur to me that would give the practicing physician more information, if the statistics were changed in those ways.

If they take into consideration all of the deaths from cancer of the cervix in North Carolina, as indirectly due to pregnancy or child-bearing —and certainly there is a direct relation there—then we have approximately a thousand women in this State losing their lives every year as a result of pregnancy and child-bearing, and losing their lives at a time when they are most important to their families and to their communities. Certainly this is enough to cause us to use every effort, and gather all the information possible, to reduce this undue and disgracefully high mortality.

I would not, for a moment, seem to protect anyone, myself or anyone else, in this high maternal mortality, because I think it is far beyond what it ought to be. But it seems to me there are two explanations which North Carolina should take into consideration, not in a protective way, for this high mortality, when we figure our maternal mortality against other states and against other countries. The first is the large negro population which, as the essayist has brought out, shows twice the mortality that the white population does, and that comes necessarily from poor obstetrics and poor and inadequate care. The second is that we have more frequent eclampsia and more malignant eclampsia in North Carolina than in many of the northern states, and other countries. I have studied eclampsia in a number of places, but no place have I seen it so frequently and so severe as in the State of North Carolina. Stragenoff in Russia has a mortality rate on eclampsia of one per cent, or 1.2%. No one in America, with all of the best care, can get anything like that rate. It is ten times as high as that, usually, under the best circumstances. I have talked with men who have visited his clinic and they, too, do not believe that the type of eclampsia in Russia is nearly so severe as in this state. But certainly, eclampsia or toxemia of late pregnancy is a thing we can work upon to reduce maternal mortality. That, as statistics show, gives us at least a third and, in my opinion, more than a third, of the maternal mortality, and it has been proven beyond a shadow of doubt that patients who receive adequate prenatal attention do not have eclampsia, and by that means we can almost eliminate eclampsia. In the past ten years, it has been our rule that a patient when presenting eclamptic symptoms or signs is put to bed on absolute rest, and milk diet, and thorough intestinal elimination, and if the symptoms and signs do not subside and the blood pressure reduce, that the pregnancy is terminated at once, and there is no exception to the rule. I believe that is the proper rule for all physicians to adopt. It may be radical, but I believe it is right. Following that rule, I

have had one patient in ten years to develop eclampsia, who was under my prenatal care. And I think that was due to extreme exposure.

As to sepsis, the next highest, I do not know the remedy for the condition but I believe the universal adoption of rectal examination in the place of vaginal examination will certainly eliminate a number of cases. Surely the adoption of rectal examination in the place of vaginal, unless the patient is prepared surgically before any vaginal examination is made, is best. That surgical preparation means the same as we use in the operating room—shaving and scrubbing.

As to midwives, I do not come in contact with them very much. I had one patient here a few weeks ago, sent in to me on Sunday morning, that had been in the care of a midwife for twenty-four hours. I understood the patient could not get a physician because they did not have funds. But the patient had a transverse presentation of the baby, right arm and shoulder presentation, right arm prolapsed, and the patient in extreme shock. The physician, as soon as he saw her, brought her in the ambulance. I made a preliminary examination and found a laceration of the anterior vaginal vault. I did not investigate that because I thought the patient should be delivered immediately, if we had any chance of saving her. I did a podalic version and extraction and delivered the patient; then investigated the laceration and found that the uterus had been completely torn loose from the bladder. It was half separated from the vagina, and the placenta was lying in the abdominal cavity. I did an immediate abdominal section, removed the uterus, transfused the patient, and she showed some improvement the second day. But unfortunately she had developed peritonitis and died on the fifth day. Had the patient been seen earlier by a physician, I think that is one case that could have been saved. The fact that she lived five days showed us that she had enough resistance, had she not suffered a general peritonitis beforehand.

I am very much interested in this work Dr. Hamilton is doing and I think he is to be congratulated upon it. I think we should give him all the support possible, and that every physician in the state should do likewise. (Applause)

President Sisk: Is there any further discussion of Dr. Hamilton's paper? If not, the next paper on the program is "Sanitary Procedure in the Community Health Program and Its Relationship to the Suppression of Disease"—Dr. J. H. Epperson, of Durham.

SANITARY PROCEDURE IN THE COMMUNITY HEALTH PROGRAM AND ITS RELATIONSHIP TO THE SUPPRESSION OF DISEASE

By Dr. J. H. Epperson
Superintendent of Health, Durham, N. C.

In formulating a community health program it is encumbent upon those of us who are responsible for the preservation and protection of the

public health to weigh in the balance all of the things which have health significance and then prorate the funds available in such a manner that the best interests of the community shall be served in the suppression of disease.

I am mindful of the fact that in many communities the people of these areas have not been sufficiently aroused and that their knowledge of the transmission of disease is so meager that they are unwilling to expend only a small pittance for public health. This condition may or may not be due to the Health Officer. My own experience has lead me to believe that one of the chief functions of the Health Officer is to educate his public in matters of health and by all possible legitimate means, sell the matter of health protection to the people to the end that they will not only be willing to be taxed for efficient health service but will actually join hands with him in demanding adequate appropriation for the maintenance of a well-rounded program.

In large communities and in the small too for that matter it is unreasonable to assume that an undermanned health organization can take official notice of all conditions which have health significance. In this connection, however, I am lead to say, from several years of experience in administrative health service, that gross neglect of that phase of health service which has to do with sanitary procedure will put a health department on the rocks quicker than the neglect of other parts of his established program which probably have more significance and which mean more from the standpoint of lessened morbidity and mortality. The will of the public cannot be ignored in such matters and if the Health Officer is alert to the situation he will undoubtedly rearrange his budget from time to time to keep in step with those of his citizens who have developed a health consciousness and who are watching his movements at least out of the corner of one eye.

It occurs to me in dealing with a subject of the character which I have undertaken that it would not be amiss even for those of us who may think we are all wise in every phase of health servcie to stop a moment and consider what some may call the commonplace things of public health. But are they? Let's be fair about the matter and weigh the evidence submitted in the light of present-day knowledge relative to the transmission of disease and then attempt to arrive at a verdict which is fair and just.

The methods and modes of living today are so complex that we are forced to consider the various and sundry ways in which diseases are transmitted and then in the light of scientific knowledge endeavor to design workable procedure which will as far as possible prevent the spread of infection. We provide dental service for our school children which is highly desirable and then in certain instances find some of these same children infected with "trench mouth" and other mouth and throat infections which more than likely have been transmitted one to the other by antiquated drinking fountains or sloppy methods practiced in school

lunch rooms. These same children who have been materially improved physically by the school dental service may in certain instances have access to public food handling establishments and with their clean, shiny teeth be permitted to drink after the tubercular, the syphilitic and the carrier of other virulent infections. These same kiddies each evening of the summer months hustle off to the community swimming pool and there in their childish glee imbibe freely of the grossly polluted water contained therein. And then shortly thereafter the doctor is called to puncture an ear or treat an infected eye or what not, all as a result of the community's failure to maintain the character of the water in a state of purity which will insure freedom from infection.

If we are positive that certain diseases are frequently transmitted from one person to another by common drinking receptacles and eating utensils then why do we hesitate to enact ordinances which will require the elimination of such practices in all public places. Many communities in this state have legislation of this character and there is no doubt in my mind whatsoever that many an innocent person has been spared a serious infection as a result of such legislation. Of course, it goes without saying that the Health Officer who has the gall to set up barriers against disease spread which involves the expenditure of money is going to be berated in no uncertain manner by certain individuals. But is not this the price we are supposed to pay in part at least for the positions we hold?

In presenting this subject, I do not presume to say that we as health workers should over-emphasize sanitation to the detriment of other phases of our respective programs, but I do say that we should not shirk any responsibility in the matter. Milk sanitation, privy inspection and maintenance, swimming pool sanitation, protection of public and private water supplies, inspection of food handling establishments, septic tank installations, housing and many other matters of such character have very definite health significance, and should if possible be taken into consideration in formulating the community health program. Not only do these matters have positive health significance, they likewise tend to promote and encourage other health measures. The housewife who appreciates cleanliness in home and cleanliness in the food handling establishment she patronizes will most likely be the housewife who will consult the family physician about the physical welfare of her family before illness actually occurs. She will also be actively interested in her parent-teacher association and will lend encouragement to holding pre-school clinics and other community health activities that others too may enjoy the comforts and blessings of good health.

I feel that at this point some concrete evidence should be offered to show the effect of sanitary measures in the preservation and the protection of the public health. I will take my own county for example because I am or should be reasonably well acquainted with the happenings a good many years ago and the conditions which prevail at present as a result of

definite sanitary procedure. During the calendar year of 1918 a total of 216 cases of typhoid fever was reported in the county. The population at that time was in round numbers 50,000 persons. It is therefore seen that the rate per hundred thousand persons would be 432. Twelve years later this same area shows a rate of 7 plus cases per hundred thousand of population. In the year 1918 only 40% of the homes of the city had a sanitary method of excreta disposal. Open privies were in abundance and many wells and springs existed which were grossly polluted. These conditions have been practically eliminated with the result that filth diseases have all but disappeared. During this same period of time a corresponding decline has been noted in the infant death rate and the fact cannot be discounted that sanitary procedure along with clinic service and educational conference service on the part of the district nurses has had much to do in preventing the slaughter of the innocent. In this connection I must necessarily allow for the part that immunization has played in lowered incidence, but I do wish to remind my hearers that in areas of the county where typhoid and other filth diseases were most prevalent that the immunization rate was the lowest. Lowest because of the lack of intelligence on the part of the people in these areas to appreciate the protection afforded. Therefore, if filth diseases were to be eliminated it became necessary to enforce sanitary measures which would protect them against themselves. This was done and the disease vanished.

I should like in the course of this discussion to give you a few observations on swimming pool sanitation because after considerable study of the matter I am of the definite opinion that the health hazard of the average pool if not properly supervised is great enough to attract the attention of the Health Officer. In the first place the clean well-designed pool affords a type of exercise and recreation which is calculated to promote health of the young and old and should be encouraged. In the second place the carelessly supervised pool affords an excellent means of transmitting disease from one person to another. For a number of years I have made it a policy to confer with eye, ear, nose and throat specialists, relative to the number of ear infections treated during the swimming season. From the information at hand it would be comparativley easy to plot a curve which would show a marked rise during the months of June, July and August among persons who frequent pools at this period of the year. The peak of this curve will become lower in proportion to the effort toward rigid supervision of the sanitary character of the pool water.

Swimming pool construction and the routine of supervision which will insure a safe water for swimming recreation is at present reasonably well established. Engineering advice is available from many sources together with the procedure necessary in operating efficiently, recirculating equipment for control of this type of pool. Likewise I have found it entirely practicable to control the sanitary character of pool water where an adequate clean supply is available for refilling at periodic intervals and

where the operator is taught the proper reagents to use and the method of application between fillings.

After considerable experience with the subject of swimming pool sanitation I am of the definite opinion that this type of recreation is highly beneficial and should be encouraged but I am equally as positive that pools should be supervised by properly trained personnel and that the character of the water should frequently be checked through the laboratory. There is an abundance of evidence at hand which will prove conclusively that the small fill and draw pool can be operated in a sanitary manner where intelligent supervision is exercised in the cleaning, refilling and the water sterilization routine.

I now venture to mention a condition which in a great many communities still escapes the all-watchful eye of the Health Officer. Most of you I presume have had experience with the single service container for dispensing soft drinks and ice cream by operators of fountain service. Of course, it goes without saying that you have frequently gone behind the scenes and observed the methods practiced in washing dishes and other utensils used in serving the public in cafes and hotels. If we believe that infection is transmitted from one person to another by indirect as well as direct contact, it almost goes without saying that an obligation rests upon the Health Officer to devise ways and means that will insure that this condition shall not prevail in his public eating and drinking places. I well know the opposition you face in accomplishing this task. The single service container for soda fountain use is constantly under fire from two angles. First, the cost of the service over and above the cost of glassware. Second, it is charged by some that discrimination is practiced by allowing cafes and hotels to use glasses, spoons, forks and cups in repeated service and that they likewise should be granted the privilege of so doing. I am forced to say in all fairness to the public dispenser of food and drink that each should be treated alike if each group can and will provide adequate and efficient means for accomplishing the task. My observation has been, however, that the average soda fountain is not as effectively designed for the proper washing and scalding of glassware as the cafe or hotel kitchen may be. Hand washing of eating and drinking utensils can be done in a sanitary manner if the right type of equipment is available and the personnel in charge has the will to do it. But it so frequently happens that careless methods are practiced and that the utensil in question receives at best a casual rinsing before going to the next customer. I offer this as a problem for your consideration without arguing the question. I am very frank to state, however, that it seemingly has much health significance and should be dealt with fairly and honestly in the interest of persons who frequent such places and the operator of the establishment as well.

The problem of housing is one which has attracted the attention of sanitarians for a long period of time. In many of our larger cities it is

one of the major problems of the Health Department and is dealt with as such. There are cities in our own state which would do well as soon as conditions permit, to think of this subject and begin to lay plans which will make for better and more healthy tenement areas. We have gone quite a ways in the elimination of the open privy and the protection of private water supplies, but not many of us have actually gone into the homes of the poorer classes and attempted to solve their problems of housing. In many instances we find overcrowding in evidence. The sick and the seemingly well sleep in close contact because of this over-crowding. Facilities for bathing are entirely lacking. Buildings are poorly designed in many instances with little thought being given by the landlord to the health and comfort of the occupants at the time of the erection of the house. Some of these problems can be solved by the Health Officer if he wills to do it. It is comparatively an easy matter for sanitary inspectors to confer frequently with the building inspectors of the larger cities and go over with him the plans for tenement buildings with respect to light, ventilation, location of toilet rooms, adequate plumbing appliances for all tenants, screening and other matters which have sanitary significance. And then too if visiting nurses will keep constantly in mind that living conditions have a definite place in her health education program, she can in many instances assist in rearranging the home, even if it be ever so modest, so as to encourage a more sane and healthy existence for the inmates thereof.

I feel that before closing this paper that just a word or two should be said concerning school sanitation. It has not been so many years ago when the one and two teacher school in many of the counties of the state were poor examples for the rest of the community to pattern after in matters of sanitation. The open privy, the unprotected water supply, the inadequate janitor service and many other conditions prevailed without being molested by any one. We have gone a long way in these matters and our country schools in most instances measure up equally well with ones in urban communities. There are a few conditions, however, yet remaining which I believe we could improve upon if we would. I have noted this one condition in many schools which I feel should be corrected and that is that drinking fountains are installed on the water lines feeding the toilet rooms and at recess and lunch periods when children are frequenting the fountains the water pressure is reduced to the point of where the flow is so low that no water is available. If the old style unprotected orifice is in evidence the flow is so weak that each child is forced to swallow a portion of the opening in order to get any water at all. This condition reinstitutes the common drinking cup and should be corrected.

In connection with the program of school sanitation it is imperative that toilet seats be frequently disinfected, that the floors of school rooms and halls be oiled to lay the dust and that lunch rooms be inspected at frequent intervals. And last but not least, the Health Officer should not

lose sight of the opportunity to sell sanitation to the school personnel to the end that many minor matters may be adjusted by reason of their interest.

In conclusion permit me again to emphasize the importance of the various phases of sanitary procedure in the health program. Even though the Health Officer may feel that his time is well taken with more important problems, he can ill afford not to take cognizance of the many conditions of a sanitary character which have a definite health significance and which attract attention to the health program in general by the thoughtful and appreciative citizen.

Dr. L. L. Williams: Mr. Chairman, Ladies and Gentlemen: I certainly do not think he has over-stressed the importance of sanitation in a public health program.

If I remember correctly, about two years ago before this body I said something in reference to sanitation in the public health program, and its importance. I felt health officers were more or less careless and negligent in regard to sanitation in a public health program.

I had something very vividly called to my attention last summer, in reference to the sanitation of swimming pools. I pass it on for what it might be worth. This was a swimming pool in a Y. M. C. A. where the water is chlorinated, and it is apparently what you would class as an A-1 swimming pool. During the summer months, or late in the summer, we had an epidemic of sinus, nose and throat infections. We got busy to try to locate the source of this epidemic, and where it was coming from. The first thing we went to was the swimming pool in the Y. M. C. A. The Y. M. C. A. happened to be running on a very slim budget. They had to pay the city for all the water they used, and we found on checking that they had been very negligent in changing the water. From observation and laboratory test of the water, we found that this was the source of our epidemic. We got busy, got the Y. M. C. A. officials interested, afraid we were going to close the swimming pool. It was cleaned out thoroughly, the water kept fresh and changed, and checked as to the chlorination, and our epidemic of this infection of nose and throat areas cleared up immediately.

I think we should be more diligent in keeping a watchful eye on just such conditions.

I feel that one of the most important phases of the work in a Health Department is the sanitation in our schools. It is hard at times to get the co-operation of our teachers, but in selling this to the Parent-Teachers' Association, and getting the women interested in the sanitary conditions of the school, they immediately are going to get the teachers concerned, and whatever needs to be done they will have done. And when you have convinced your women of the school, and the parents, of the necessity and prime importance of sanitation in the school, you have gone a long way in selling your entire public health program to that particular com-

munity. They will be a great assistance to you, and will enable you to get the necessary budget required to carry on a well-rounded program. (Applause)

Dr. A. C. Bulla (Raleigh): This paper is applicable to all health offices. It has been pointed out very forcibly, I think, that most of our advances have been made by demonstrations. I think our first demonstration that I recall right now was about 1665. It was made in London when someone was asked to locate a hospital. He hung raw pieces of meat about in different sections of London, to see which would spoil first. And the one that spoiled last, that stayed fresh the longest, was selected as the most suitable place to locate a hospital. It was a very practical plan, I presume, in that day and time.

Coming on down the list, we remember that Pasteur, in every step that he undertook, had to give tests and public demonstrations, to make the public believe that he was teaching them practical, sensible things in that day.

Gorgas, about 1898, had to demonstrate that yellow fever was carried by a mosquito. And so on, down to the present time. We are demonstrating daily that many diseases are transmitted by the common drinking glass in our fountains today, and yet, it creates no concern whatsoever. The public is not concerned about that. They are not insterested in that. But we are demonstrating these things daily. And we are not making the impression that should be made.

President Sisk: Is there further discussion?

Dr. C. W. Armstrong (Salisbury): This Association is honored today by the presence of the President-elect of the State Medical Society. It is the first time that I recall when a State President of the Medical Society has sat in all day long at our meeting. I suggest that the Chair recognize Dr. Manning and extend him the privilege of the floor.

President Sisk: It is a pleasure to have you with us, Dr. Manning, and it is with pleasure that we extend you the privilege of the floor.

Dr. Manning: No, thank you.

Mr. Warren H. Booker (Raleigh): Mr. President, I was very much interested in Dr. Epperson's paper. Unfortunately I did not have an opportunity to read it before he gave it a few minutes ago. I think, however, that Dr. Epperson is to be criticized a little bit for an undue sense of modesty. He came along to this matter of school sanitation and mentioned that last, and he didn't tell what I think is the real milk in the cocoanut, about that subject of school sanitation in Durham County.

Some months ago we were very much interested in studying the matter of school sanitation in North Carolina, as compared with school sanitation in the country at large. Some of our studies were with reference to water supplies in our public schools. We found that roughly one-third of our schools in North Carolina do not have any water supply at all. That is to say, children get their water from a nearby family, or a filling

station, and I am sorry to say in some cases from side ditches and open streams. Approximately a third have no water supplies. Another third have fair to good water supplies (or slightly less than a third), while slightly more than a third have bad or questionable water supplies.

With reference to the school sewerage, we find that the sanitary conditions there are even worse, if possible. About one-fourth of our schools were found to have no sewerage at all. Approximately another fourth have fair to good sewerage, and slightly over half have bad or questionable sewerage.

So much for the picture in North Carolina. We felt that that was bad and we were anxious to compare it with other sections of the country. So we took the registration areas as a whole, in an effort to find out any possible relation between the sanitary conditions in North Carolina and our death rate, as compared with that of the registration area. We find this: During pre-school ages, that is up to five years, 4.5% of our North Carolina cases of typhoid occur resulting in death. In the United States, however, 5.4% occur in pre-school ages.

Now then, during the school ages, in North Carolina we have 36.7% of our deaths occurring from typhoid, but only about 33.9% in the registration area.

Finally, in post-school ages, in North Carolina we have 58%, roughly, of our deaths from typhoid occurring, but in the registration area slightly over 60%. In other words, folks, it is safer in North Carolina to be at home before school or after school, and it is more dangerous to be in school in North Carolina than it is elsewhere.

That seemed very significant in view of what we already knew in regard to school sanitation. That being the case, we cast about for some demonstration, as Dr. Bulla was mentioning, to give us a clue in regard to what this was all about. We took up Durham County because we knew that there, a little over five years ago, they had inaugurated, through Dr. Epperson's efforts, a program of school sanitation. We studied five years prior to the adoption of this program of school sanitation in his county, and five years subsequent, with these results:

The number of deaths from typhoid, in pre-school ages, before they sanitated, was one, and since they sanitated, it was two. That is not significant, but here is the significant thing: During school ages, before sanitation, they had twelve deaths in Durham County, and since sanitation they have had no deaths in the school ages. During post-school ages, in Durham County, they had thirteen deaths from typhoid fever during the five years prior to school sanitation, and only nine since then.

In view of those statistics, gentlemen, I think that Dr. Epperson has given us a demonstration such as Dr. Bulla was talking about, which is second to none. He has demonstrated over there that school sanitation—and I don't mean that immunization and other means have not contributed

their part—has figured tremendously in reducing the death rate over there, where they have an enormous medical center. (Applause)

PRESIDENT SISK: Is there further discussion? The next paper on the program is "Tularemia in North Carolina," by Dr. D. F. Milam, Epidemiologist, State Board of Health, Raleigh.

TULAREMIA IN NORTH CAROLINA—1928-1933

By D. F. MILAM, M.D.
Epidemiologist, North Carolina State Board of Health

Tularemia as a human disease made its first appearance in medical literature in 1914 in Cincinnati. It was an American disease worked out by Americans, and it was at first thought to be limited entirely to a few sections of the United States. In the twenty years since that first case was diagnosed, human cases have been reported in more than forty American states and from many nations in Europe and Asia. We can now consider it a world-wide disease. The medical literature on tularemia is getting to be voluminous, too voluminous to read casually. After going over this literature recently it seemed worthwhile to assemble data on the cases occurring in North Carolina and to compare the findings in this state with the general knowledge of the subject. In particular, it was worth attempting to find out how extensive the disease was and in what parts of the state it was occurring; also what animals were the source of the disease, if other animals than the rabbit were also responsible; and what was the usual method of transmitting infection from animal to man.

Consulting the records it was found that there were twenty-one reported cases, including two deaths. By checking back on laboratory records and attempting to follow up every possible case we have increased the number of reported cases at this writing to forty-five. We have no reason to believe that this is all the tularemia that has occurred in North Carolina, but it is a sufficiently large number of cases to indicate the trend of the disease here. It is evident at the outset, from the small number of cases reported, that tularemia is not an outstanding public health problem. It is, however, a disease of particular interest to certain groups in the state, particularly hunters, butchers, and others coming in contact with rabbit carcasses.

The forty-five North Carolina cases included in this analysis have all been reported since the year 1928, in which year it was made a compulsory reportable disease. There are three known cases which were infected in 1928, six cases in 1929, ten cases in 1930, seven cases in 1931, eighteen cases in 1932, and in 1933 one case to date. It is quite probable that the increase in the recent years is due entirely to a more general appreciation of the existence of this disease rather than to an actual increase in its incidence.

The month of occurrence of the majority of tularemia cases in North Carolina is interesting and important in that it coincides exactly with the hunting season for rabbits. There are, however, scattered cases throughout the year, showing that the hunting season is not universally observed. The months of maximum occurrence are November to February. In these months thirty-four of our forty-five cases occurred: in November ten cases, in December twelve cases, in January nine, in February three. In other months nine cases are on record, two cases in months not stated. These nine cases out of the hunting season occur in every other month of the year except April, one or two cases in each month. So much for the *season* of occurrence.

As to *occupation,* the distribution of the thirty-eight patients for whom we have collected records is as follows: farmers eleven, housewives nine, children two; and one each: traveling salesman, veterinarian, woodyard operator, and railroad flagman; and twelve cases with occupation not stated. Quite evidently the two most dangerous occupations in regard to tularemia are farmer and housewife, this of course being related to their more frequent contact with rabbit carcasses. It might be inferred that farmers are more frequently engaged in rabbit hunting than are men in other occupations; however, the salesman, flagman, and wood dealer show that other callings also have their contingent amongst the hunters. It is to be noted that "hunter" was in no instance given as the occupation.

Color: As to color of the forty-five known cases of tularemia, thirty-five were white, six black, four not stated. This ratio of white and black is, roughly, the same as that of the two races in the population of the state.

Sex: Males accounted for twenty-seven cases, females fourteen, not stated four. It is worth noting that there were one-half as many women as men amongst the patients, though hunting rabbits is not a sport women ordinarily engage in. This again points to the great danger to housewives coming in contact with rabbit carcasses by preparing them for cooking.

Age: Regarding age, tularemia can evidently occur at any age. No one of the cases occurred in a child under five years of age, but one or more cases occurred in each of the five-year age groups between five and sixty-five years. There were eleven cases, or one-quarter of the total, in the age group 45-54 and ten cases in the group 35-44. That is to say, approximately one-half of the cases occurred between the ages 35-55. It seems to be quite evident that age has no relation to susceptibility to tularemia infection, the only point being opportunity for exposure. Such opportunity is naturally concentrated in the adult or near adult population.

Distribution in the State. The forty-five North Carolina cases of tularemia are distributed in nineteen counties, one case also being assigned to South Carolina and one unknown. Six cases were infected in Anson county, five in Stanly, and four each in Durham, Guilford, and Cabarrus; two cases each in Chatham, Granville, Caswell, Nash, Union, Wake; and

one each in Alamance, Beaufort, Columbus, Forsyth, Lee, Mecklenburg, Pender and Randolph.

It would be manifestly unfair to assume that these are all the counties in which cases occur or that the danger of infection is in proportion to the number of reported cases from the several counties. Too many other factors are involved, including failure to report, to warrant any such conclusions. It is interesting that no cases have been reported west of Charlotte and Winston-Salem and only three east of Raleigh. I don't know why our reported tularemia should appear to be concentrated in the Piedmont section. The disease in rabbits is known to occur in epidemics and the geographical location of these epidemics varies just as occurs in human epidemics of other diseases. It is probably fair to assume that the danger of meeting an infected rabbit is pretty well equalized throughout the state over a long period of years.

Animal Source. The literature on tularemia has recorded cases arising from contact with a great many different animals. Those listed up to the present include the rabbit, rat, mouse, squirrel, woodchuck, muskrat, coyote, cat, dog, sheep, cattle, horse, deer, and several birds, including quail and pheasant. In the absence of direct proof as to animal source, the probable source of infection has been queried in each of our North Carolina cases. The rabbit is far and away the most usual source and was given as the probable source in thirty-three of the forty-five cases. One case each was attributed to the following animals: squirrel, cat, opossum, dog, skunk, hog. In six cases the source is unknown. These cases, for animals other than the rabbit, are of course not definitely proven, but presumptive evidence is that these sources were responsible. So far as I know, cases have not previously been attributed to the opossum, skunk, or hog. These animals, however, are a part of the great group of possible or probable sources of this infection and it would not be surprising if they were the actual source in these cases. Since no other probable source was available in each case, they are tentatively accepted as the source of the cases attributed to them. Parenthetical reference is made to another North Carolina case of tularemia reported by Dr. Lucius G. Gage of Charlotte. This patient in 1921 cleaned several quail and injured a finger with a broken wing bone. She also manipulated some rabbits at the same time. Clinical tularemia developed and was subsequently confirmed by the agglutination test five months later.*

The *method of transmission* of infection from animal to man in every case in our series save one was by direct contact with suspected animal source. In the thirty-three rabbit cases, it was by contact with the rabbit carcass. The squirrel clawed a man in the thumb; the cat scratched a child on the back of the hand; from the opossum no known injury was received but an ulcer developed on the hand after dressing the animal; the skunk bit a man on the finger when he tried to catch it; the hog

*Reported in the A. M. A., April 25, 1925, 84, p. 1245.

case occurred in a veterinarian who made a post-mortem on a hog supposed to have died of cholera. The dog case occurred in a man who picked ticks off the dog and knew of no other source of contact. Parenthetically, it can be stated that forty such dog tick cases are on record and that this tick is a good vector of the disease. Cases are also on record from the bite of the wood tick.

The *method of transmission* of tularemia from rabbits to man has usually been through the skin by handling carcasses. Recently a small group of cases was reported in a South Carolina family where a sluggish rabbit was knocked down with a stone, hastily cooked and eaten. Practically the whole family was infected and no ulcers or glandular enlargements were observed. The epidemic was proven to be tularemia and every evidence pointed to infection through the intestines from the insufficiently cooked rabbit. In this South Carolina epidemic there were several deaths, showing the severe type of this infection. Two of our North Carolina cases quite probably received their infection in the same manner, that is, through the intestines from insufficiently cooked rabbit. The two patients, a white man and a black man, went on a hunting and drinking spree, killed a rabbit, and the negro dressed it. It was hastily cooked and eaten. Within twenty-four hours both were acutely ill and were hospitalized. Tularemia was suspected from the history. The blood of each was tested for tularemia and was found positive in titer 1:640 in the case of the white man but negative in the case of the negro. The negro died on the ninth day of illness and the white man on the thirteenth day of illness. Neither showed any ulcers or glandular enlargements, but an autopsy on the white man showed enlarged medistinal glands and there was some lung involvement. These cases will undoubtedly be reported in detail by the doctors at Duke Hospital. It seems quite probable that both are cases of tularemia from ingestion of insufficiently cooked rabbit and that the negro died before positive agglutination could be obtained. The negative agglutination test on the negro does not exclude tularemia, since this test is frequently not positive until the third week of illness.

The method of acquiring the animals suspected of causing the infection is of interest. For animals other than the rabbit this has already been mentioned. Of the suspected rabbits, twenty-five were shot by the patient or someone in his family. The question as to whether the animals were sluggish when killed is an important one. It is a universal recommendation to hunters that they forego shooting a rabbit that does not actively run away, since a sluggish rabbit is possibly suffering from tularemia. In the twenty-five instances cited here, in only one case did the hunter notice that the rabbit was sluggish and in another instance reported that it was an unusually thin rabbit. In nine instances it was stated that the rabbit was active and in fourteen cases that the patient hadn't noticed anything one way or the other. Only one of the suspected rabbits was bought at a butcher shop. In another instance the source was unknown. Other than

being shot or bought at the btucher's, one rabbit was caught by a cat, one was caught by a dog, two were caught in traps, one killed with a stone, one caught in its bed, and one caught in a hollow tree. But only the rabbit caught by the cat and the one caught in its bed were noticed to be sluggish. The others were active or no attention was paid to this point. These points serve to illustrate the point that it is unsafe to conclude that only sluggish rabbits are dangerous as a source of tularemia.

Portal of Entry. Of the thirty-eight patients for whom records are complete, thirty-four dressed the animal themselves, four did not. In the thirty-four cases the portal of entry was evidently through the skin, the infection coming from the raw flesh or blood of the animal. Of the other four cases, one from macerated dog tick is similarly explained. The skunk bite, the squirrel claw, and cat scratch are not so easy to explain.

Of the type of wounds preceding the ulcer, nine were penetrating, seven were abrasions, three were knife cuts, one was from clawing and one unknown. In seven cases there was no known injury at the time of dressing the animal. In ten other cases there was no known injury made at the time the animal was dressed, but a previous injury or sore open at the time the animal was dressed was the probable portal of entry. These preceding injuries are listed as follows: one hangnail, one pimple on the face which was squeezed with the soiled hand, one crack on the knuckles, one injury from a handsaw, one knife puncture, one old ulcer, two briar scratches, two abrasions. In only one case were any precautions taken following injury and this was application of iodine to a knife cut.

The site of injury, identical in every case with the site of the subsequent ulcer, were as follows: on fingers ten, thumb ten, hand twelve, face one, not stated five.

Regarding the question of thorough cooking, the answer was "No" in two cases, being the two above described as probably dying from ingestion of insufficiently cooked rabbit. The hunter who noticed the skinny rabbit rejected it for food, but acquired an ulcer from skinning it.

Symptoms. The classical symptoms of tularemia as listed by Francis are: (1) history of having dressed a wild rabbit or being bitten by an insect vector; (2) a primary papule on the skin followed by a persistent ulcer or a primary conjunctivitis; (3) persistent glandular enlargement in the region of the primary lesion; (4) a fever of two or three weeks' duration. These four symptoms, supported by a positive agglutination test, are diagnostic of tularemia. In our series there is *history of contact* with the animal source in every case. As to ulcer, it was present in thirty-three cases, not stated in three, and absent in two. These last two again were the above-mentioned cases which were probably ingestion tularemia. The site of these ulcers was in every case the same as the site of the original skin injury. In five cases there were multiple ulcers, these being on the hands and forearms in two cases; on the hands, feet and face in one case; on several fingers of both hands in one case; and on the

knuckles and palm in one case. Our series of cases does not include a tularemic conjunctivitis.

Regarding regional *glandular enlargement,* it was present in every case except two. In one of these the doctor could not remember, when questioned four years after the death of his patient. The other case was that of the negro dying from probable ingestion tularemia. The other ingestion case showed mediastinal glands at autopsy. Otherwise, glandular enlargement was as follows: axillary and epitrochlear fifteen cases, axillary alone sixteen cases, epitrochlear alone two cases, cervical one case (case with infected pimple on face), axillary and cervical one case. Our information is not very complete regarding the point as to whether or not these glands suppurated, the question being confused with that regarding discharge from the ulcer. In several cases, however, it was stated that the glands were fluctuant and were incised with resultant discharge.

The height and duration of *fever* in our group of cases is as follows: highest fever under 100 degrees two cases, 101 degrees one case, 102 degrees four cases, 103 degrees nine cases, 104 degrees eleven cases, 105 degrees four cases, 106 degrees two cases, unknown four cases, not stated one case. Of the five cases dying, one had maximum temperatures of 104 degrees; two had 105 degrees; one had 106 degrees; and in one death the maximum temperature was not stated. The *duration of fever* was stated to have been as follows: under one week three cases, one week three cases, two weeks two cases, three weeks five cases, four weeks six cases, five weeks two cases, six weeks four cases, two months two cases, three months one case, four months two cases, five months one case, to death (under two weeks) three cases, not stated four cases. Or, summarized, nineteen or one-half of the thirty cases had fever lasting one month or shorter, twelve had fever lasting five weeks to five months.

An interesting point is the *interval* between exposure to infection and the onset of symptoms. In four cases this interval was one day, two of these patients being the ingestion cases, both dying within two weeks. The interval was two days in one case, three days in three cases, five days in one case, six days in three cases, seven days in three cases, eight days in two cases, eleven days in two cases, twelve days in two cases, fourteen days in one case, and three weeks in two cases; unknown or not stated fourteen cases. The shorter interval would apparently point to severity of infection or size of dosage. Two of the four cases developing within one day died. The interval was six days for another death and in two deaths the interval could not be stated.

Regarding the five cases *dying,* three were colored and two were white; three were male and two female. The interval between onset and death was, for the five cases, as follows: nine days, thirteen days, thirty-four days, four to five weeks, unknown. The deaths occurred one each in the years 1928, 1929, 1930, two in 1932.

Diagnosis. The diagnosis of tularemia is made clinically on the tetrad of history and symptoms listed above. This clinical diagnosis should be confirmed by the agglutination test. The agglutination test is usually not sufficiently positive to be diagnostic until the third week of illness. Of the thirty-eight cases whose record we have obtained, twenty-seven gave positive agglutination test. Of these twenty-one were positive in dilutions ranging from 1:80 to 1:1280. There was one case with agglutination positive in dilution 1:20. The time in illness when all blood specimens were taken for examination has not been obtained. This would be an important point in interpreting the negative reactions of which we have a large list. In five other cases the agglutination test was positive but records showing the titer are not available. In five cases the test was not made, three of these being deaths. In four other cases information regarding agglutination test was not obtained. In two cases, reported as tularemia, the agglutination test was negative, one of these being the above-mentioned case of ingestion tularemia with early death, and the other having the history and symptoms of tularemia but with repeated negative blood tests, and probably not tularemia.

In the twenty-one positive agglutinations of known titer, six were positive in dilutions 1:640 and six in dilutions 1:1280. This indicates the very high degree of positive results obtained in this disease. The positive agglutination test after an attack of tularemia has been found to be positive for as long as twenty-five years after the attack. This would naturally raise the question as to whether another illness suspected of being tularemia might not be misdiagnosed when a positive agglutination for tularemia dating from the old attack should be found. A disease clinically diagnosed as tularemia, supported by the positive agglutination test, should, however, be unhesitatingly diagnosed as tularemia. It is interesting to note that at least one case of a second attack of the disease is on record. The immunity, therefore, to this disease, as in most others, is relative and not absolute.

In conclusion, it is repeated that tularemia is not an outstanding public health problem and that there is no reason why hunting rabbits should be abolished or the use of rabbit meat for food questioned. There are other common sources of animal food potentially much more dangerous than the rabbit. What is important is that the danger of contracting tularemia, small as it is, should be borne in mind by those most exposed to it, namely those handling rabbit carcasses. Such precautionary measures as are possible should be taken and these include avoiding shooting or any contact with rabbits that are sluggish in running away from the hunter. When the dressed rabbit shows a white speckled liver, it should be rejected for food and burned and the hands thoroughly disinfected. It would be very helpful if the custom for housewives to wear coarse rubber gloves when dressing rabbits should come into use. Any type of meat used for human food is safest if thoroughly cooked, and this certainly applies to

rabbit meat. And a rabbit caught by hand, knocked down with a stick or stone, or caught by a child, cat or dog, is in general not to be considered suitable for eating.

DISCUSSION

PRESIDENT SISK: Is there any discussion on the paper of Dr. Milam?

DR. JOHN SYMINGTON (Carthage): I would like to ask Dr. Milam a question. He talked about the duration of the fever. I would like to ask how long, as a rule, the ulceration and swelling of the glands lasts, in the majority of the cases, and also a little about the treatment.

DR. C. C. HUDSON (Greensboro): I would like to add some little information which Dr. Milam may not have had in regard to the origin of infection of these cases. I noticed he did not state just where the infection came from. He gave the locality, but that does not always give you the places where they were infected. For instance, in Greensboro, the skunk case came from the eastern part of the state. They were traveling along, east of little Washington, going along a path, and they thought they saw a pretty kitten. A man started to catch it and he was bitten—and other things, and tularemia resulted. So that case was definitely contracted in the eastern part of the state. The other case we had in Greensboro came from South Carolina. This lady was nursing her daughter down in South Carolina and contracted the disease down there. She came home and developed it a day or two after coming to Greensboro. So in those two cases, the origin was definitely elsewhere than in the Piedmont section.

DR. MILAM: Answering Dr. Symington's question, unfortunately the treatment for tularemia, once developed, is largely symptomatic. Within the last year or two a group in Cincinnati have been studying it. They had a case—and by the way, it was the first case diagnosed around Cincinnati—of conjunctivitis of the eye, from running the hand to the eye while butchering. They have made a close study for tularemia since that date, and at present they are producing a curative serum. As far as I know its source is entirely in Cincinnati, and is used only locally. I don't know whether it is available for use in other areas or not. I understand it is being made useful. Otherwise, the treatment is largely symptomatic and can drag out a very long time.

Now, your question about ulceration I am sorry I did not understand.

DR. SYMINGTON: It was about the duration of the fever, and I wanted to know the duration of the ulceration and swelling of the glands.

DR. MILAM: The original ulcer frequently heals before the glands are noticed, so that if you had only what you can see you would not know there had ever been an ulcer on the finger or hand. Sometimes if you look you will see a little scar, and if you ask you can get the history of the ulcer there. The glands actually get as large as your fist and stay enlarged for some weeks. I can't say exactly how long. They supurate frequently, and vary in size, but it is weeks, certainly; and cases of tularemia lasting symptomatically over a year are reported.

PRESIDENT SISK: The next paper is "The Relationship of Oral Conditions to Systemic Conditions," Dr. Arthur Fleming of Louisburg. (Applause)

THE RELATIONSHIP OF ORAL CONDITIONS TO SYSTEMIC CONDITIONS

By DR. ARTHUR FLEMING

Mr. President and Gentlemen: I assure you that coming here from the dental profession, that section of the great profession of medicine, has been most interesting to me, because we deal in germs up to our elbows all day long.

This study of germs has been a very big question from time immemorial. We have heard the study that Dr. Milam has given it, and the study that other great scientists have given it.

You know, some years ago there was a meeting down at Morehead, and Dr. Edward C. Kirk, the Dean of my Alma Mater, came down to give a discussion on germ theories. It was about the time that Dr. Miller of Berlin had put out the first plausible dental caries theory. Dr. Miller, having been a student at the University of Pennsylvania, Dr. Kirk was invited down to read a paper. Well, the paper was over everybody's head. I was glad I was a student at the time and not supposed to know much. But it was a magnificent paper. In the course of his paper he took occasion to say that Dr. Miller had isolated a germ in Berlin which was so small that ten thousand could stand abreast on the point of a cambric needle without being in apposition. And of course it took many thousands of amplifications for this germ to be seen. When he had finished his paper they called on the others for discussions and nobody discussed, because nobody seemed to know. Well, up in the western part of the state we have a very celebrated character who farms, and carries his operative instruments around in his pocket, but he is shrewd. And they called on this gentleman to get up and discuss the paper. He got up and said, "Gentlemen, I have enjoyed hearing Mr. Kirk read his paper. It was mighty nice. But I don't know anything about them. I don't have none in my practice. I don't have nothing to do with anything that you have got to buy five hundred dollars' worth of glasses to find them. If he wants me to take any notice of them, they have to grow up to be some size."

Well, we have got germs, and if it were in order, I would like to make a motion that this wonderful paper that has just been read be referred as a tribute to the Chief of the Bureau of Animal Husbandry. I think it undoubtedly will show that we have the healthiest rabbits through Wake and Franklin counties, of any part of the state.

We have in dentistry almost all the germs to which the human system falls heir. It is deplorable that we do not have clinical and laboratory

facilities for ferreting out the cases that come to us, and that the physicians have.

In the short scope of man's life, there are just a few things, a few major things, that have entered into his life to make it either miserable or pleasurable. It matters not what the record of human systems may be or may have been. Our records are very meager of anything from the lost continent of Mulab to the newly discovered Manchukuo. But they all are inhabited by and populated with human beings, subject to different diseases. Now, the diseases have come about, not as a curse from some supreme being, because that could not be. And our blessings have not come about by any special gift from supernatural things. But we must all admit that when man reached that stage that he realized his inability to create himself, he worshipped something, and looked higher—to the stars, and the wind; and no man with a vestige of brains would dare say that he does not realize that there is something, call it cause and effect, or science and nature, or God, whatever you please, that is bigger than we are, that controls the destiny which controls us.

A few hundred thousand years ago, of which we have very little history except the history that is being dug from the earth today, when man first stood erect, he changed his entire being. His blood pressure was changed. Every vital organ in his body was changed; its position was changed, and its hang was changed. And that is the first great factor that has had to do with the health or the unhealthy conditions, probably, of the human race today and its predecessors.

The next principal factor that entered into life was probably the discovery of fire. And with the discovery of fire came, of course, cooked foods. Now there is no doubt that this world has been here for billions of years and man, through special selection, is only probably one of nature's wonderful germs that happened to stray out in a more selected field and, through his absolutely uncharitable attitude towards everything else around him, has gotten to be the germ predominant at present, as we are pleased to picture him.

But, gentlemen, we are not. Its seems fallacious to think that man, whose mind probably has reached the culmination or the highest point of any animal, must admit that his body is still amenable to the most lowly germ.

Now, with the advent of fire, as I said, we began to cook foods, and the human system has not changed with its environment one-millionth time as rapidly as our foods have changed. Our foods are not suited to the human system today, and the cry today, the blazing cry, in almost every magazine for uncooked foods, is only a back-to-the-soil call, which man realizes he must hear, at least to a certain extent.

The ultra-violet ray, and the many other things that are entering into our daily life—that business men are missing—the nudist colony, the bathing suit without a back, and the evening dress which unfortunately

gets no ultra-violet ray, are all the answer and a logical answer to back-to-nature.

Now, when we come in contact with the virile germs, we are up against a problem. Through the thousands of years of, you might say, physical debauchery, the germs have maintained their racial status. They have maintained their social characteristics. And while the human frame has degenerated in certain particulars, it has become amenable to the action of the most virile germs. The work of the health officer and the work of the doctor are wonderful. We are studying and working out wonderful things that are benefiting the children and the adults every day. But there is hardly enough stress laid on the point that in order to have a healthy body you must build a body not to be able to take vaccines, necessarily, or to take medicines, necessarily, or to shy away from the old proverbial swimming pool; but rather, start out with building a structure strong enough to resist those things with which we come in contact. Life, as you know, is a continuous struggle of vitality against virules; and if the wee, little germ, through its racial stability has maintained more virulence than the human being can meet, he is going down. We must lay more stress on those things.

Now when this begins to happen, when a germ begins to affect a human system, it does not affect the strongest organ in that body. It affects the weakest organ, because the human being's strength is in an inverse relation to that of the germ. Now since, as I said, we are standing erect, we no longer need the appendix into which went the chaff of maybe three hundred and fifty thousand years ago, from roots and barks and such things. The appendix is disappearing. And we are having all sorts of trouble with appendices. Of course, if the race goes through maybe a half million years more, it is destined, unless we change our food, to not only be a race entirely destitute of appendices, but we will be a sucker race—very much like the horse-fish. Because nature is undoubtedly eliminating all unused organs, and teeth are one of the greatest unused organs today—next to the appendix. You can go back, in any of the older museums, and examine the oldest skulls, prehistoric skulls—for instance, in the Worcester Institute of Anatomy—and in looking at skulls from the old Egyptian civilization, especially in the mummies, you will find thirty-two well developed teeth. We do find there was a great deal of dentistry among those people, but it was for decorative purposes more than it was for the alleviation of pain. And now it is the rarest thing to find in anybody, even the best fed and best nourished people, thirty-two well-developed teeth. You will find in children that their teeth are developed in proportion to the brains of the mother and the brains of the grandmother. Because you will find in families that the same class of foods exist for several generations.

Back in Civil War days, or before the War, you would see the little slick fat niggers running around the house, with their little stomachs

stuck out as fat as could be, and the little white children looked emaciated. The little niggers were eating and drinking the pot liquor and dunking corn bread, and the little white children were having theirs dipped from a cauldron of four or five gallons. And all the lime and calcium and phosphorus, and anything else of value, that was in the turnip greens or the cabbage, was boiled out for the little nigger children, and the white children ate the alfalfa.

A very cultured woman asked Dr. Darby when was the time to begin to care for her children's teeth. He very wisely said, "Lady, with their great-grandmother."

Now to deal with teeth only for masticatory purposes and for decoration has been the idea of a great many dentists. I am proud to say, and I say it unhesitatingly, that the personnel of North Carolina dentists is much higher than almost any state in the union. We have a State Board that requires a man to know something and be something before he can expose himself to the great public of North Carolina to do a service. And yet, we have conditions that are confronting us today with older men in the profession, who have not kept abreast of tularemia and other diseases, who are doing things just as they were done twenty or twenty-five years ago. The discovery of the X-ray has done more to revolutionize the practice of dentistry than any other one factor, and it has shown us conclusively, those of us who are willing to admit our mistakes of twenty years ago, exactly what we were doing.

I want to cite one case for you, if I am not taking too much time. A good many years ago, a patient came to me who was a tobacco chewer. He had worn his teeth away down to the gums, upper and lower. Well, he was a little bit kin to me by marriage, and I didn't think if I did anything wrong he would tell it. And I thought if I did anything right he would be glad to tell it. So I did what I thought then, and what the profession thought in the light of the very best knowledge we had, was a wonderful piece of dentistry. Where the teeth were worn off to the gingiva, his teeth closed down to the gum line. I put porcelain crowns on all of the upper and lower anterior teeth, and then on the molars and bicuspids I elevated them perhaps an eighth of an inch with gold—what we call cast work. It was beautiful. If I do say it myself, it was skillfully done, and I was so proud of it that I brought him to Raleigh, to the State Dental Convention, and with a great deal of pride I opened his mouth and showed the works.

Well, the man went on. He was a farmer, and a man of wonderful vitality. But for that, he would have been dead long ago. He hunted and fished, and led an outdoor life. He lived—and I was proud of him. I was proud of his work and he was proud of me. But about ten years after that, I bought the first X-ray in North Carolina. And singularly enough, I have a diagram and absolute record of every filling and every operation that I have ever done since I have been practicing dentistry, since 1902.

When I got the X-ray, this fellow being kin to me I sent for him to come in, that I wanted to X-ray those crowns. He said, "No sir, they are all right. Nothing is the matter with them." And he would not let me do it. I told him what might happen, and that there were no men of repute now that would dare put a crown on a dead tooth, and that I was quite sure if he ever died that those darn teeth would kill him. But he would not let me take them out, and wouldn't let me examine them under the X-ray.

Well, I lost track of him. He moved away, to another far section of the county, almost bordering on Wake County, and he was taken sick, less than two years ago. He had rheumatism and had it bad. He was in bed for several months and then intermittently for a week or two at a time. Finally, a very conscientious country physician, after treating him for about eighteen months, suggested that he go to a dentist. The gentleman was brought to my office on a stretcher. He still maintained that there was nothing the matter with his teeth, that not a single one had ever been sore, and not a one had ever given him any trouble. Much over his protest, I X-rayed the teeth and found nineteen beautiful abscesses. I was afraid to eliminate so much infection at one time, and so only extracted about four or five of the worst ones first, and curetted the pockets. He came back in about a week and, with the aid of a man on each side, they were able to get him up the steps to my office. I took out several more. And after a period of about three weeks he came up the steps himself, and I extracted all of his teeth. Now he has been adentulous for six or seven months, possibly, and his rheumatism has entirely disappeared.

Gentlemen, that is only one of dozens and dozens of cases, that I might recite to you. And there are hundreds of other dentists who could recite them to you also, if they were honest enough to admit their mistakes. I have made them, but I am trying not to make any more quite as big as that.

I believe there are more infectious conditions that arise in the mouth, that affect the human system, than even the best of our pathologists imagine.

Doctors Rosenauer and Price have done magnificent research work along this line and have given us a wonderful field for thought. And while we don't have the laboratory facilities for examining all of these cases, still in just such cases as I recited, when you do something and have a definite result, you have every reason in the world to believe that you are along the right line.

I am glad that the physicians and the health workers in North Carolina are co-operating one hundred per cent with the dentists and other physicians, because without the proper co-operation of all, it is impossible for one to accomplish what they could together.

I have in mind a gentleman from the states who held a most responsible position in the Orient for fourteen or fifteen years, who developed

lumbago and neuritis to the extent that he had to resign his position with the Standard Oil Company in Teintsin. He went to Singapore and was examined. He went to London and was examined. Then he finally came back to the States and went to a very celebrated hospital in North Carolina, where he was examined. I am sorry to say that not a single one of these hospitals made anything more than a casual examination of that man's mouth. His work was beautiful. It was perfect from a mechanical viewpoint. But when he came into my office I suggested an X-ray, just after he had come from a two weeks' stay in a North Carolina hospital, in which time he told me they did everything, even to making a spinal puncture, and they found nothing that they could relieve. When I suggested an X-ray of his teeth he was astounded. But I found, under that beautiful work that had been made, (some in India, some in Berlin, and all over the world, including the Philippines, and mostly done by American dentists) and under those beautiful crowns and bridges, there were nine granulomas.

I have not finished with the patient, although I have extracted three or four, and done curettements. I don't know what the ultimate end will be, but he is improving.

I am glad we can work these cases out together, and it is a real pleasure to work in any town, as I do, with the physicians, who work with us. I am glad to bring you a message from the dental profession that we are with the health work and with the physicians in the state one hundred per cent, and we want you all to help us in our work. (Applause)

DISCUSSION

President Sisk: Is there any discussion of Dr. Fleming's talk? Dr. Fleming, I want to express the appreciation of the Association for the excellent talk you have made. It is a very valuable subject for the physician, and particularly the health officer.

I see we have Mr. Riley with us. I remember well an excellent paper Mr. Riley gave us at Winston-Salem last year on the subject of syphilis. I would like to ask him if he has anything to add at this time. Mr. Riley.

Mr. William D. Riley: Mr. President, Ladies and Gentlemen: Paraphrasing the language of the great Mark Antony, when he stood before the bier of his beloved Caesar, I came not here to talk. I am here today to listen and to learn. In that I have not been disappointed. You have not been disappointed, either, I am sure. But now your turn for disappointment, I am sure, has arrived, inasmuch as Dr. Sisk has injected me or catapulted me into this program.

Broadly speaking, the problem of syphilis comprises two well-defined aspects. One relates to the public health control of disease. The other embraces a multiplicity of economic conditions resulting from imperfect, improper or haphazard application of well-known and well-tried public health measures.

It is impossible to deal successfully with either phase of this problem if we entirely ignore the other. Pausing for a moment, to ponder upon the many ramifications of the syphilis problem, we are at once reminded that syphilis, more than any other disease which afflicts mankind, manifests itself in some disabling form long years after the public health aspect of the disease has been forgotten. It is obvious, therefore, that unless physicians and clinicians treating syphilis look into the future to visualize what might happen to a syphilitic patient, unless he is properly and adequately treated, we are not going to make a great deal of headway or progress in the control of this very important public health problem.

The minimum aim, in the public health control of syphilis, is to render the patient temporarily non-infectious. The maximum aim is to render the patient permanently non-infectious. Cure of the patient, however, is quite another story. While the public health worker is interested primarily in only those two phases of the problem, that is to say, the minimum aim and the maximum aim, he is not, however, in our opinion, doing his whole job if he loses sight of the fact that the economic phase of the problem is perhaps just as important as the immediate public health aspect.

Let us look at this phase of the problem from the standpoint of treatment. Too often, much too often, we find the treatment of syphilis confined to the use of only one drug. I was in a clinic in this state not very long ago, in which I was told that their schedule of treatment was about like this: Twenty doses of neoarsphenamine. Then they pick up the treatment by the use of mercury. I would like to see the clinician or the physician who is able to control the average patient over twenty weeks of treatment. It is usually considered a pretty fair treatment over a period of fifty-two weeks.

Now, the old conception of radical cure of syphilis has been discarded in favor of a long-time treatment for syphilis, with a possibility of rendering that patient entirely free from the disease. This is not possible, however, if we confine the treatment only to the use of one drug. Now the value of the arsenicals, which have sprung into pretty popular use in the last few years, has not been thoroughly evaluated. The efficacy of the drug, I should say, has not been thoroughly evaluated. However, we do know that the function of that drug is primarily to remove surface lesions. In the use of that drug, however, we find that a great many of the organisms are not killed off and it is those remaining organisms that cause serious damage later on in life. It is possible to effect a satisfactory cure of syphilis only by the use of other anti-syphilitic drugs in connection with the arsenicals. I didn't expect to speak, however, on the subject of treatment.

Now, as concerns the public health aspect of syphilis, I would like to state that in full-time County Health Departments this problem should be integrated in the whole health program, rather than be dealt with

haphazardly, as it has been dealt with so frequently in the past. The average health officer is interested in syphilis, but he finds so many obstacles in his way that he confines the control of the disease simply to treatment.

The cure of an isolated case of syphilis is a medical problem of no special difficulty. Therefore, if every case of syphilis could be isolated until cured, syphilis would become a rare disease in a few years. It is accordingly obvious, then, that the social management of these diseases is relatively just as important and as far-reaching in the end as methods of medical attack. Accordingly, too, the nurse can be a vital factor in the County or City Health Department in the program of syphilis control.

Social management, however, of the disease, is one of the most difficult problems that confronts us in the control of syphilis. I know of no work that requires a higher order of diplomacy, judgment and discretion than does medical social service in connection with syphilis control. The nurse who understands the problem, its ramifications, who is intelligent enough to apply the measures at hand, and who can deal tactfully and successfully with the family, has an opportunity of rendering a very valuable contribution to the common good.

If there are any questions I shall be very glad to answer them. (Applause)

President Sisk: Is there any discussion of Mr. Riley's remarks, or any questions?

Dr. Parrott, have you something to add?

Dr. Parrott: No, I have not.

President Sisk: If there is nothing else, we will now call this meeting adjourned, until eight o'clock this evening. The meeting will held in this room.

. . . The meeting adjourned at 5:00 P. M. . . .

MONDAY EVENING SESSION

April 17, 1933

The meeting convened at 8:15 P. M., Dr. C. N. Sisk, President of the Association, presiding.

President Sisk: The first paper on our program this evening is "Diagnosis and Treatment of Fungus Infections in North Carolina," by Dr. D. T. Smith, of Duke University.

DIAGNOSIS AND TREATMENT OF FUNGUS INFECTIONS IN NORTH CAROLINA

By Dr. D. T. Smith, Duke Hospital, Durham, N. C.

INTRODUCTION

Fungus infections are relatively more common in North Carolina than in more northern states. After eliminating the fungi which remain localized

to the skin and hair, we find three groups which may produce severe and even fatal infections. (Table 1). With the exception of *Torula, Coccidioides immitus,* and *Mucor,* we have seen one or more examples of each of these thirteen types of fungus infection since the opening of the Duke Hospital in July 1930.

EXAMINATION OF MATERIAL FOR FUNGI

The yeast-like fungi and the mold-like fungi can be found in the secretions from the lesions by treating some of the material with 10% sodium hydroxide and examining it under the microscope with the condenser racked down as for the study of casts in the urine.

The higher bacterial forms may be found in the fresh material as "sulphur granules" or demonstrated in stained smears as branching gram positive forms which may be either acid-fast or non-acid fast.

CULTIVATION OF FUNGI

But the yeast-like and the mold-like fungi are easily cultivated on Sabouraud's media. The higher bacterial forms require a medium which contains blood or ascitic fluid. Many of these organisms are anaerobic so both aerobic and anaerobic cultures should be planted.

SACCHAROMYCETE

The Saccharomycetes have a "yeasty" odor and produce on Sabouraud's media a white glistening colony which resembles *staphylococcus albus*. These organisms reproduce by budding and by ascospores, but form no filamentous hypha. They are only rarely if ever pathogenic.

MONILIA

The Monilia have a "yeasty" odor and produce white colonies on Sabouraud's media which resemble *staphylococcus albus*. They reproduce by budding and by filamentous hypha, but not by ascospores. Some species are non-pathogenic while other species are moderately pathogenic.

TORULA

The Torula have a slight musty odor and produce white, ivory, or pink-colored colonies on Sabouraud's media. In size and consistency they resemble monilia, but they reproduce by budding alone, having neither ascospores nor hypha. Some species are non-pathogenic, some moderately pathogenic, and a few, e.g., *torula hystolytica,* highly pathogenic.

ENDOMYCETE

The Endomycetes have either no odor or slightly musty odor. They produce on Sabouraud's media a tough corrugated colony with hypha which extend down into the media. They may, or may not have aerial hypha. They reproduce by hypha and by spores, containing endospores, which form within the segments of the hypha. They are either non-pathogenic or only slightly pathogenic.

OIDIUM

The Oidia have little or no odor and produce a white corrugated colony on Sabouraud's media with hypha extending down into the media. The colony looks tough, but when touched with the bacteriological loop, it is found to be quite soft. They reproduce by hypha and by budding from the corners of the rectangular spores. Some strains are non-pathogenic; others moderately pathogenic.

BLASTOMYCETE

The Blastomycetes have little or no odor and produce on Sabouraud's media tough, corrugated colonies of white, yellow, red, gray, brown, or black color. They have hypha which project down into the media and may or may not have aerial hypha. They reproduce by budding and by hypha and show after four to six days incubation double contoured spores which differentiates them sharply from the five preceding types. The blastomycetes are either moderately or highly pathogenic.

COCCIDIOIDES IMMITUS

This highly dangerous fungus has no odor and produces on Sabouraud's media a white, filamentous fuzzy colony. It reproduces in human and animal tissues by budding and by endospore formation and on artificial media by hypha alone. This fungus has a double contoured spore which can be differentiated from that of the blastomycete by its larger size and by the presence of endospores. This is the most highly pathogenic of all the fungi and is reputed to kill 98% of its victims.

SPOROTHRIX

The Sporothrix have little or no odor and produce on Sabouraud's media a small tough corrugated colony of white or black color, depending upon the species. It reproduces both by hypha and by spore formation. The spores are small oval bodies which may arise singly or in pairs from the sides of the filaments or in clusters from their ends. These organisms are generally moderately pathogenic, but may be highly pathogenic at times.

MOLD LIKE FUNGI

The *Aspergillus, Penicillium,* and *Mucor* belong to the same family as the ordinary bread molds. All three may produce black, brown, red, yellow, or green-colored colonies on Sabouraud's media. Both filaments and spore formation are employed in the reproduction of all three species. The differentiation is made from a study of the fruit or spore heads. The fruit of the Aspergillus has a clear central body around which the small, round colored spores cluster resembling a sunflower. The spores of the Penicillium develop on a structure which suggests the hand of a skeleton with the chains of small spores representing the fingers. The Mucor has a large round head with the spores all enclosed inside a delicate membrane. Most

strains belonging to these three groups are non-pathogenic, but some strains under favorable conditions acquire a moderate degree of pathogenicity for man.

ACTINOMYCETE

The Actinomycetes produce sulphur granules when growing in man, but not on artificial media. When grown on blood agar under anaerobic or aerobic conditions, small, tough, corrugated colonies appear which on smear show numerous gram positive filamentous branching organisms. Some actinomycetes are non-pathogenic, some pathogenic for plants, some have a moderate and some a high degree of pathogenicity for man.

NOCARDIA OR STREPTOTHRIX

The Nocardia or Streptothrix organisms resemble in general the Actinomycete, but do not produce sulphur granules. They may be demonstrated in smears from the lesions as gram positive branching filamentous forms which may or may not be acid-fast. Most of them produce tough corrugated colonies on blood agar which resemble the Actinomycetes, but some the acid-fast forms have not yet been cultivated on artificial media. Most strains of Nocardia have little or no pathogenicity, but some have a moderate and some a high degree of pathogenicity for man.

TREATMENT

All types of fungus infection should be treated with large doses of potassium iodide. We begin with one drop three times a day of a saturated solution and increase the dose either one drop each day or three drops each day until the patient is receiving sixty drops three times a day. Sensitivity to iodides may be encountered at any level between five and one hundred and eighty drops per day.

Those patients which do not respond to potassium iodide treatment are given in addition ethyl iodide inhalations. We begin by having the patient breathe through a small Collins inhaler 1 cc. of ethyl iodide three times a day and gradually increase the dose by ½ cc. each day until the patient is receiving 5 cc. three times a day. We have seen one case of actinomycosis, one of blastomycosis, and one of sporothricosis resistant to potassium iodide which made rapid improvement with ethyl iodide.

TABLE I

FUNGUS DISEASES OF THE LUNGS

I. YEAST LIKE FUNGI

(1) Saccharomycete
(2) Monilia
(3) Torula
(4) Edomycete
(5) Oidium
(6) Blastomycete
(7) Coccidioides inmitus
(8) Sporothrix

II. MOLD LIKE FUNGI
(9) Aspergillus
(10) Penicillium
(11) Mucor

III. HIGHER BACTERIAL FORMS
(12) Actinomycete
(13) Nocardia (a) Acid-fast, (b) Non Acid-fast

PRESIDENT SISK: I am sure we have all enjoyed Dr. Smith's presentation of this important subject, and if there is any discussion we would like to hear it.

It seems to me, from some of the pictures he has shown, that possibly we have been treating cases for tuberculosis and chronic leg ulcers that probably would have been benefited by potassium iodide.

DISCUSSION

DR. P. P. MCCAIN (Sanatorium): I am not capable of discussing this subject, but I do want to testify what a joy it is to those of us doing tuberculosis work, to have such a man as Dr. Smith right here in our state, to whom we can refer these doubtful cases. Every one of us doing chest work constantly sees cases that have a lot of pathology in the chest, but we cannot find tubercle bacilli in the sputum, and we immediately begin to doubt that it is tuberculosis when they have advanced disease but repeated examination of the sputum fails to find the bacilli. Dr. Smith is an outstanding authority in the United States on this subject and is not only willing but anxious to co-operate with the doctors of the state.

I want to express my appreciation of this paper and also of the fine work that Dr. Smith is doing in this state. (Applause)

PRESIDENT SISK: Ladies and Gentlemen, it gives me great pleasure at this time to present a native North Carolinian, one whom we all know and who needs no introduction to a North Carolina audience. This gentleman was educated at the University of North Carolina, progressed in the field of public health and at the present time he occupies the highest position available in his field. We are very glad to have with us Dr. John Ferrell, President of the American Public Health Association, who will speak to us on the subject, "Observations on Present Trends in Public Health." Dr. Ferrell—of New York City and Clinton, N. C. (Applause)

OBSERVATIONS ON PRESENT TRENDS IN PUBLIC HEALTH

By JOHN A. FERRELL, M.D., Dr. P. H., New York*

The factors in public health service which are of concern to the taxpayer are numerous, but only a few of the more important ones can be discussed in the few minutes at my disposal.

*President, American Public Health Association and Associate Director, International Health Division, Rockefeller Foundation.

The safeguarding of public health is essentially a responsibility of government. This principle is accepted even by the voluntary or unofficial health agencies, and it is, of course, recognized by all branches of government—federal, state, and local. That this is so is evidenced by laws which regulate the powers, duties, and expenditures of public health organizations.

The scope of the public health field has not yet been clearly defined. Such activities as are involved in safeguarding the public water supplies, disposing of sewage, rendering milk and other foods safe, combatting communicable diseases, and teaching the public methods of protection against disease; and the principles of promoting health and physical efficiency are now uniformly recognized as responsibilities of the health department. Questions arise when the health department offers services which the physician thinks he might furnish on a private basis. Immunization and/or curative measures are, in certain cases, essential for the protection of the community against disease, and in certain situations the safety of the community demands that they be uniformly and promptly carried out and not left to the uncertainty of the patient employing the physician.

Physicians in a private capacity are expected to practice medicine, both preventive and curative, to the fullest extent possible, as long as this procedure, or rather its failure, does not endanger the health of others in the community. The social welfare service is expected to furnish medical care of a therapeutic nature only for the indigent, that is for those who are unable privately to pay for medical care. In view of the present tax burdens, neither the health service nor the social welfare desires to make greater demands upon the public treasury than are necessary. Since these services have limited funds and personnel, the tendency would be for them to urge that every possibility for treatment and care on a private basis be fully exhausted before they take matters in hand. But it must be remembered that the family which secures its medical service privately is also the one which largely supplies the tax funds to pay for free medical services for the indigent. In time, such families may protest against this double assessment. In the field of public education the protest came years ago, with the result that all children of the community, regardless of economic status, are now admitted to the public schools.

Many sparsely settled communities have been unable to induce qualified physicians to settle in the neighborhood for the private practice of medicine. In such communities, separate health, medical, and welfare services are obviously impracticable. In the sparsely settled Canadian provinces of Saskatchewan and Alberta, a movement has gained headway by which the municipality—somewhat smaller in population and possibly in area also, than the average county in the United States—has employed a full-time physician to render all needed medical service, curative and preventive, on a salary paid with funds collected by a tax levy. In August,

1932, of the 301 rural municipalities in the province of Sasketchewan, 36 were served by full-time municipal physicians, and 27 other municipalities were served by part-time municipal physicians. Of the 589,273 rural inhabitants of the province, 127,469, or 21.6 per cent, were served either by full-time or part-time municipal physicians.†

This development is mentioned merely to emphasize the fact that social, political, and economic conditions are not uniform, and that, consequently, we need not expect the scope of public health service, or its organization or procedures, to be uniform in all communities.

No factors relating to public health service are of as great importance as the qualifications and the competency of the personnel. University training of personnel specifically for public health service began to make headway only during the past decade or two. Progress has been made over a longer period by health workers who, in the school of experience, have adapted and applied knowledge to the protection of health, by means of the trial and error method.

Now that a creditable body of knowledge has been assembled, organized, and classified, and has been given practical tests in order to afford guidance to health organizations and a scientific basis for sound courses in public health, the time seems to be ripe for gradually placing the health service definitely on a professional basis. The transition can not, of course, be sudden. In medicine and in law the change from the apprenticeship type of training to the ordered university course was gradual. Experience has already demonstrated that, of all the professions, medicine comes nearest to supplying the basic knowledge upon which efficient health service can be founded, but it has demonstrated also that medicine alone is insufficient. Knowledge in the fields of engineering, statistics, epidemiology, economics, and education, is also essential. Moreover, the knowledge, from whatever source derived, has to be adapted and applied to health conservation from the community standpoint. Failure on the part of executives or boards, and on the part of the public, to understand that public health is a technical service for which special training is necessary, has retarded progress and at times has lead to inefficiency and waste. Fortunately there is a trend—steadily gaining headway—toward placing public health service and its personnel, composed of medical health officers, sanitary engineers, statisticians, epidemiologists, and public health nurses, etc., on a professional basis, free from the injurious influences of politics.

The carrying out of this principle raises questions, on the one hand, as to conditions regulating appointment, service, tenure, and compensation, which would tend to attract and to hold competent personnel, and on the other hand as to how the appointing authority can distinguish between the trained and the untrained, the qualified and the unqualified.

The criteria by which the appointing authority and the public can distinguish the qualified and trained health worker from the unqualified or

†Notes of Dr. John G. Fitzgerald.

untrained worker have not been satisfactorily settled. Certificates or diplomas from recognized colleges, combined with successful experience, will to some extent meet the situation. However, since the health worker must have special training in public health, in addition to training in medicine, engineering, or nursing, steps are now being taken in a few places to set up definite qualification standards for each group or class of health workers. Safe, intelligent, and efficient service in the protection of the public health is the objective. The public and the taxpayers are entitled to protection against unqualified health workers. There is discussion in public health circles with regard to the establishment of a national qualifying agency similar in character to the National Board of Medical Examiners. Whether a national or state basis or both will be adopted in creating agencies to pass upon qualifications of health officers and other health workers, I hesitate to predict, but I feel sure that the growing interest in professional education will lead to some plan that will safeguard the public.

The program of the health department should be sound. It should be based upon a thorough survey of the health problems of the community to be served. Careful consideration should be given to the relative importance of these problems as well as to the steps which, in the light of available knowledge and funds, can be taken to solve each of them. All the activities to be undertaken should be listed and classified. In a local health department, for example, the duties of the health officer should be listed separately; likewise those of the nurse, the sanitary officer, and the office assistant. The work to be undertaken by each member of the staff each week, month, or year should be projected as far as practicable into the future so that the schedule will place emphasis on problems according to their importance and according to the season of the year when the work can be done most effectively. The trained health officer will find the task of laying out the program reasonably simple. He can prepare blanks on which to keep records of the work done by each member of the staff and show the collective results achieved.

Those of you who have visited health organizations which have not defined their problems, formulated their programs, and recorded their activities and results, know how poor an impression they create and how unfavorably they compare with an organization that is operating intelligently and in a systematic way. Evaluation of results renders record-keeping necessary. The records should be of such a character that they reveal results in terms of health and lowered death rates. Systems have been devised which translate dollars into activities, but a satisfactory method for translating activities into convincing evidence of better health and greater physical efficiency has not yet been perfected. Influence on the mortality statistics is the measure most often applied, but as a method this fails to reflect the value of the work in important respects and leaves much to be desired.

The cost of health services varies widely. The amount necessary for the state or central government to set aside for health work will depend somewhat upon the extent of the health service provided by the local governments. In general, the central or state health services of progressive states spend yearly 20c to 80c per capita. Expenditures by local governments, city or county, range from about 20c to more than $1.00 per capita; in a few exceptional situations, more is spent. Usually the state shares substantially in the cost of county health services. For a population of 20,000, an expenditure of 50c per capita under the prevailing salary scale will finance what is known as a four-piece unit, that is, a health officer, an office assistant, a nurse, and a sanitary officer. A unit of this type can accomplish a good deal, but the staff is too small to supply a service approaching adequacy. A per capita expenditure of $1.00 will supply a very good service of a preventive character, which makes no attempt to supply bedside care. With this expenditure, there can be provided a health officer, a clerk, two sanitary officers—one for each ten thousand inhabitants—and four public health nurses, i.e. one for each five thousand inhabitants. Some authorities think a higher ratio of personnel to population is necessary.

The influence of the economic depression on health has not been apparent, if the mortality figures available for 1931 and 1932 reveal actual conditions. There have been no severe death-dealing epidemics, and it may be that the slump in standards of living is not being reflected immediately in the death rates. The death rates from heart disease, cancer, and suicides have definitely increased. Some of the health authorities who are watching trends state that recently the deaths of infants and deaths due to tuberculosis have shown an increase. They believe that even if prosperity should now return, the depression will have an adverse influence on health for some time to come and that there will be an increase in death rates. Surely this is no time for the average family to be called upon to meet the cost of medical care made necessary by sickness which an efficient health department might have prevented.

A committee which for five years has been studying the cost of medical care in the United States reports that for every dollar spent on medical and health service, only 3.3 cents goes for public health work, whereas 29.8 cents goes to physicians, 23.4 cents to hospitals, 18.2 cents for medicine, 12.2 cents to dentists, 5.5 cents to bedside nursing, and the remaining 7.6 cents for other miscellaneous items. No one reasonably aware of the possibilities of preventing much of the sickness necessitating these expenditures doubts the wisdom of enlarging the public health service, which operates entirely in the field of prevention. Compare the record of our 50,285 who were killed or who died of wounds in the World War, with 88,088 persons dying of tuberculosis in the United States in 1930, and the 135,845 infants under one year of age dying in this country in 1931. We know that a large percentage of the infant mortality and of the deaths from tuber-

culosis and from other diseases could have been prevented. Is it not strange that the taxpayer will submit to having only 1.4 per cent of what he expends for the prevention and care of illness applied to the *prevention* of illness, while according to the Committee on the Cost of Medical Care 78.5 per cent goes for the *care* of illness?

Defending the health budget should, theoretically, be easy. It is generally known that diseases such as typhoid, diphtheria, and smallpox can be held in check by preventive measures. Should they become epidemic, the present financial embarrassment of individuals and families would increase. Unless disease prevention is maintained as actively as is possible, the consequences will be disastrous, not only to families, but to the government, because the already enormous costs for the care of the tuberculous, of the insane, and of other unfortunates will continue to increase.

When retrenchment and reduction of appropriations are the order of the day, there is danger that the appropriating bodies will not make distinctions where they should be made. An indiscriminate cutting down of health appropriations may be likened to a nation entering into war before thought has been taken of the consequences in suffering, death, and cost in taxes for generations to come. Gains in the protection of the public health have come slowly. They may not disappear immediately, but like the influences of war, the consequences of indiscriminate curtailment in funds and service will arise in the form of chronic illness, increasing need for institutional care, and a rising death rate, which will continue for a long time to come. Since health service is impersonal in character and since the results to the average citizen are less apparent and less tangible than are services which are applied to him individually, like the treatment of a decayed tooth or the removal of diseased tonsils, he may not appreciate the protection he enjoys through the health service, and as a result he may not work for the retention of the health appropriations as he would if the services were more personal. The taxpayer, experiencing increased difficulty in paying the assessments made on him, is, of course, concerned with having his dollar applied where it will mean most for the welfare of himself and his family. While services other than health must be maintained, the consequences of even a temporary reduction in some of them, I believe, will be less injurious over a period of years than would be a cut in the health appropriations. Of course, it is taken for granted that the money going into health service is to be used for the maintenance of an efficient organization, a sound program, and competent personnel.

President Sisk: I want to thank Dr. Ferrell on behalf of the Public Health Association for this excellent paper and assure him we are always glad to have him with us.

We have with us at this time an ex-President of the American Public Health Association and a former Secretary of the North Carolina State Board of Health. I want to ask Dr. Rankin to say a word.

Dr. W. S. Rankin (Charlotte): Mr. Chairman, I appreciate being recognized. I am very sorry that I could not get over earlier in the day to enjoy the discussions which I have been told by a number of my friends were very helpful. It is always a great pleasure to be here, and to be present when Dr. Ferrell returns to his native state. We all feel a great deal of pride in his position in the public health work of the United State, and I might say of the North American continent. I always do enjoy hearing Dr. Ferrell discuss public health and the broader aspects of public health. I am particularly gratified to hear him stress the importance of being careful about making retrenchments at this time, when retrenchments are the order of the day. He has been interested for a long time in advocating some standard qualifications for health officers. He has taken a leading rôle in that movement. I don't know how long it will be before it matures, but it is one of the essential things in the further development of the public health work in this country. (Applause)

President Sisk: We will now have the reports of committees. The first is Report of the Committee on the President's Address.

. . . Dr. J. Roy Hege read the Report of the Committee on the President's Address, as follows:

COMMITTEE REPORT ON PRESIDENTIAL ADDRESS

We, the Committee on the President's Address, submit the following report:

Whereas, the President of our Association has most effectively called to our attention the fact that only a portion of the counties of our state are served by definite and adequate health services, and whereas, he further calls to our attention the small amount of public funds expended for health services as compared to the amount spent for roads, schools, and other governmental services. Whereas, we the members of the Public Health Association, fully agree with the principles outlined by our President in a readjustment of expenditures and policies relating to public health administration.

Now, therefore, be it resolved that this association go on record commending Dr. Sisk for his timely presentation of these problems. And be it resolved further, that the members of this association go on record publicly endorsing his policies, and that each of us lend our support and influence to the task of carrying out his suggestions. Be it further resolved, that this association endorse in principle the proposed policy outlined by Dr. Sisk in differentiating between the practice of medicine and the established public health program. We further urge that the State Board of Health take official notice of the situation existing in several counties relative to the enforced practice of medicine by the Health Officers, and

that the State Board of Health use all legitimate means of having this practice discontinued.

Dr. J. H. Epperson,
Dr. C. W. Armstrong,
Dr. J. Roy Hege.

. . . Report was adopted . . .

President Sisk: Report of the Committee on Resolutions.

. . . Dr. A. C. Bulla read the Report of the Committee on Resolutions . . .

REPORT OF COMMITTEE ON RESOLUTIONS

Raleigh, N. C., April 17, 1933.

Your Committee desires to make the following report:

In the death of Dr. Clarence A. Shore, February 10, 1933, the North Carolina Public Health Association lost one of its most valuable members. For twenty-five years he was connected with the State Board of Health and director of the State Laboratory of Hygiene. From a very small beginning, a few test tubes, Bunsen burner and a small appropriation, he saw the laboratory grow from year to year to become the very soul of the Public Health System in North Carolina, and which was the pride and glory of his most useful career.

What Dr. Shore has left behind him in our hearts and minds constitutes his real memorial, his honesty, his willingness to help, his reverence for truth—these are the attributes that are worthy of worship and for which he will be held in remembrance.

To know him was to value his friendship, to admire his character and best of all, to love him for those rare virtues that set him apart; his retiring disposition, his shrinking from public and private praise, his adherence to verity and his innate passion for the truth, the beautiful and the good.

The 1933 General Assembly has designated for all time that the institution, which he served so well and which represents his life's work, shall be called "The Clarence A. Shore State Laboratory of Hygiene."

We wish to thank the officials of the Hotel for the courtesies and privileges extended to the Association.

A. C. Bulla, *Chairman,*
R. S. McGeachy,
T. C. Britt.

. . . The report was adopted . . .

President Sisk: Next thing on the program will be the election of officers for the ensuing year. Do I hear a nomination for President?

Dr. R. S. McGeachy: I want the privilege of placing in nomination my old friend and neighbor, and college mate, Frank M. Register.

. . . The nomination was seconded . . .

PRESIDENT SISK: Are there further nominations?

. . . It was voted, upon motion made and duly seconded, that the nominations be closed . . .

PRESIDENT SISK: I will ask the Secretary to cast the unanimous vote of this body for Dr. Register for President.

SECRETARY MITCHELL: Mr. President, I am very happy at this time to cast the vote of the North Carolina Public Health Association unanimously for the election of Dr. F. M. Register for President of this Association for the ensuing year.

PRESIDENT SISK: Nomination for Vice-President.

DR. BROADWAY: I rise to nominate Dr. Z. P. Mitchell for Vice-President.

. . . The nomination was seconded . . .

PRESIDENT SISK: Are there further nominations?

. . . It was voted, upon motion made and duly seconded, that the nominations be closed . . .

PRESIDENT SISK: I will ask the Secretary to cast the unanimous vote of this body for Dr. Mitchell for Vice-President.

I declare Dr. Mitchell elected. And now that we have elected Dr. Mitchell Vice-President, that vacates the office of Secretary. We will entertain a nomination for Secretary.

DR. MITCHELL: I will put in nomination the name of Dr. D. E. Ford for Secretary.

. . . The nomination was seconded . . .

PRESIDENT SISK: Further nominations?

. . . It was voted, upon motion made and duly seconded, that the nominations be closed . . .

PRESIDENT SISK: I will ask the Secretary to cast the unanimous vote of this body.

SECRETARY MITCHELL: Again I am very happy to cast the unanimous vote of this Association for Dr. D. E. Ford for Secretary, and I now declare him the Association's Secretary.

PRESIDENT SISK: I will ask Dr. Carlton and Dr. Hudson to escort the new President to the Chair.

. . . President-elect Register was escorted to the Chair . . .
(Applause)

PRESIDENT REGISTER: Gentlemen, I certainly appreciate this honor very much and I hope that the organization will stand behind me. You have made me President, now help me out. I certainly appreciate this honor very much. (Applause)

Is there any other business to come before us tonight? If not, I will declare this meeting adjourned.

. . . The meeting adjourned sine die at 10:00 P. M. . .

ALPHABETICAL LIST OF FELLOWS FOR 1933 WITH POST OFFICE ADDRESSES

Name	*Address*
*Abel, J. F., (Hon.)	Waynesville
Abernathy, H. N., (Hon.)	Charlotte
Abernathy, Miles B	Reidsville
*Abernethy, Claude O	Raleigh
*Abernethy, Wm. Borden	Chapel Hill
Achard, Lucien	Morganton
Adams, C. A., (Hon.)	Durham
Adams, Charles E., (Hon.)	Gastonia
Adams, Edw. E	Murphy
Adams, J. L	Asheville
*Adams, J. R	Charlotte
*Adams, M. R., (Hon.)	Statesville
Adams, N. B	Murphy
Ader, O. L	Walkertown
*Adkins, M. T	Durham
Alexander, James M	Statesville
Alexander, Jas. R., (Hon.)	Charlotte
Alexander, M. Janet	Montgomery India (Mecklenburg Co.)
*Allan, William	Charlotte
*Allen, Chas. I	Wadesboro
*Allen, Jos. A.	New London
Allen, Sylvia	Charlotte
Allen, W. O	Hendersonville
*Allgood, R. A	Fayetteville
*Alyea, Edwin P	Durham
Amoss, Harold L	Durham
Anders, McT. G., (Hon.)	Gastonia
Anderson, Chas. A., (Hon.)	Burlington
*Anderson, R. S.	Rocky Mount
Anderson, Thomas Eli, (Hon.)	—Statesville
*Anderson, W. B	Durham
Anderson, Wade H	Wilson
Angel, Edgar	Franklin
Angel, Furman	Franklin
Archer, Isaac J	Black Mountain
*Armstrong, C. W	Salisbury
*Asbill, David S	Statesville
*Ashby, E. C	Mount Airy
*Ashby, J. W	Raleigh
Ashe, J. R	Charlotte
*Ashcraft, J. E., (Hon.)	Fayetteville
Ashford, Chas. Hall	New Bern
*Ashworth, B. L., (Hon.)	Marion
*Ashworth, W. C., (Hon.)	Greensboro
*Averitt, K. G., (Hon.)	Cedar Creek
*Avery, E. S	Winston-Salem

Name	*Address*
Aycock, F. M	Princeton
*Aydlett, H. T	Greensboro
Aydlette, J. P. (Hon.)	Earl
*Baker, Horace M	Lumberton
*Baker, J. M., (Hon.)	Tarboro
Baker, W. E	Arden
Bandy, W. G	Lincolnton
Banner, A. C., OALR	Greensboro
Banner, Chas. W., OALR, (Hon.)	—Greensboro
*Barbee, G. S	Zebulon
Barnes, Dempsey	Asheboro
*Barnes, J. T	Asheboro
Barrett, H. P	Charlotte
*Barrett, J. M	Greenville
*Barron, A. A	Charlotte
*Basnight, Thos. G	Stokes
Bass, H. H., (Hon.)	Henderson
*Bass, H. H. ,Jr	Henderson
*Bass, Spencer P	Tarboro
Battle, Geo. C	Asheville
*Battle, John T. J., (Hon)	Greensboro
Battle, N. P	Rocky Mount
*Beall, L. G	Black Mountain
Beam, H. M	Roxboro
*Beam, R. S., OALR	Lumberton
Beasley, E. B	Fountain
Beckwith, R. P	Roanoke Rapids
Bell, A. E	Mooresville
*Bell, Carl W	Raleigh
Bell, F. O	Burlington
Bell, J. C	Maysville
*Bell, G. E	Wilson
Bellamy, Robert H	Wilmington
Belton, J. F	Winston-Salem
Benbow, J. T	Winston-Salem
Bender, E. L	New Bern
*Bennett, E. C	Elizabethtown
Bennett, Jos. H	Wadesboro
Berry, John	Greensboro
*Best, D. E	Goldsboro
*Best, Henry B	Wilson
Biggs, Montgomery H	Rutherfordton
Bigler, V. L	Albemarle
Billings, G. M	Morganton
*Bitting, Numa Duncan	Durham
*Bittinger, S. M	Sanatorium
*Bizzell, M. E	Goldsboro

*Present at 1933 Meeting at Raleigh.

Name	*Address*
Black, George Wm.	Charlotte
Black, O. R.	Landis
Blacksher, T. J.	Wilson
Blackwelder, Verne H.	Lenoir
Blair, Andrew	Charlotte
*Blair, A. McNiel	Southern Pines
*Blair, J. L.	Gastonia
Blair, M. P.	Marshville
Blanchard, T. W.	Hobbsville
Blue, A. McN.	Carthage
*Blue, Waylon	Jonesboro
Blumberg, Alfred	Oteen
Bolt, C. A.	Morrisville
*Boney, Elwood R.	Kinston
*Bonner, J. B.	Aurora
*Bonner, K. P. B.	Morehead City
*Bonner, O. B., OALR	High Point
*Booker, L. S.	Durham
*Booker, Edwin N.	Selma
*Boone, W. H.	Durham
*Boone, W. W.	Durham
*Bost, T. C.	Charlotte
Bostic, Wm. C.	Forest City
*Bostic, W. C., Jr.	Forest City
*Bowers, M. A.	Winston-Salem
*Bowles, Francis N.	Durham
*Bowman, E. L.	Lumberton
Bowman, H. E.	Aberdeen
Bowman, H. P.	Greensboro
*Braddy, Wade H.	Burlington
Bradford, W. Z.	Charlotte
Bradsher, J. S.	Stovall
Brandon, W. O.	North Wilkesboro
Brantley, Hassell	Spring Hope
Brawley, M. H., OALR	Salisbury
*Bray, T. L.	Plymouth
*Brenizer, A. G., Jr.	Charlotte
*Brewer, J. S.	Roseboro
*Bridges, D. T.	Lattimore
*Brinkley, H. M.	Durham
Brinn, T. P.	Hertford
Bristow, C. O.	Rockingham
Britt, C. S.	Charlotte
*Britt, J. N.	Lumberton
*Britt, T. C.	Mt. Airy
*Broadway, R. E.	Tarboro
*Brockmann, Harry L.	High Point
Brooks, B. U.	Durham
Brooks, H. E.	Clayton
*Brooks, R. E.	Burlington
Brookshire, H. G.	Asheville
Broun, M. S., OALR	Asheville
Brown, C. E.	Salisbury
*Brown, F. B.	Winston-Salem
Brown, G. A., (Hon.)	Mt. Ulla
Brown, G. W.	Raeford
Brown, J. S., Sr., (Hon.)	Hendersonville
Brown, J. S., Jr.	Hendersonville
*Brown, W. M. B.	Greenville
*Brownsberger, John F.	Asheville
*Bryan, Lorenzo D.	Snead's Ferry
Buchanan, L. T.	Laurinburg
Buck, David M.	Asheville
Buckner, J. M.	Swannanoa
Buckner, Margaret	Charlotte
Buffaloe, J. S.	Garner
*Bugg, C. R.	Raleigh
Buie, Roderick M.	Greensboro
*Bulla, A. C.	Raleigh
*Bullitt, J. B.	Chapel Hill
*Bullock, Thomas C., (Hon.)	Autryville
Bunn, J. J.	Mount Pleasant
Burleson, W. B.	Plumtree
*Burrus, John T., (Hon.)	High Point
*Burt, B. W.	Holly Springs
*Burt, S. P., (Hon.)	Louisburg
*Butler, Leroy J.	Winston-Salem
Butt, R. B.	Marion
Byerly, Andrew B.	Cooleemee
Bynum, John, (Hon.)	Winston-Salem
*Byrd, W. C.	Morrisville
*Byrnes, T. H.	Durham
Caddell, G. C.	Hoffman
Campbell, Alton C.	Raleigh
Campbell, A. S.	Durham
*Carlton, Romulus L.	Winston-Salem
Carlyle, J. B.	Burlington
*Carpenter, Coy C.	Wake Forest
*Carr, M. L.	LaGrange
*Carrington, G. L.	Burlington
*Carroll, E. D. Dixon, (Hon.)	Raleigh
*Carroll, F. W.	Hookerton
*Carter, Bayard	Durham
Carter, H. W., OALR	Washington
Carter, P. C.	Madison
*Carter, Thos. L.	Gatesville
Castelloe, Cola	Windsor
*Casstevens, J. C.	Clemmons
*Casteen, Kenan	Leaksville
*Cater, C. D.	Greensboro
Cater, R. L.	Greensboro
*Cathell, E. J.	Lexington
*Caviness, Zebulon M., (Hon.)	Raleigh
*Caviness, V. S.	Raleigh
Chadwick, W. S.	Beaufort
Chambers, P. J.	Charlotte
Chester, P. J., OALR	Southern Pines
*Cheek, C. E.	Fuquay Springs

*Present at 1933 Meeting at Raleigh.

Name	*Address*
Cheesborough, Thos. P., (Hon.)—	—Biltmore
Cheves, W. G.	Bunn
*Chiles, George C.	Sanford
Choate, A. B.	Charlotte
Clark, E. S.	Clarkton
Clark, H. S.	Asheville
Clay, E. L.	Timberlake
*Clement, Edward B., OALR	Salisbury
Cloninger, K. L.	Conover
Clyatt, Claude Eugene	Denton
*Cobb, Donnell B.	Goldsboro
*Cobb, Wm. H., Jr., (Hon.)	Goldsboro
*Cocke, C. H.	Asheville
Cocke, E. R.	Asheville
Cocke, Jere E.	Asheville
*Coddington, H. A.	Wilmigton
Colby, C. DeW.	Asheville
Cole, Walter F.	Greensboro
*Coleman, G. S.	Kenly
Collings, Ruth M.	Greensboro
Combs, Fielding	Winston-Salem
*Combs, Jos. J.	Raleigh
Cook, J. L.	Winston-Salem
Cooke, G. C.	Winston-Salem
*Cooper, G. M.	Raleigh
*Coppedge, T. O.	Nashville
*Coppridge, W. M.	Durham
*Corbett, Clarence Lee	Dunn
Corbett, J. P.	Swansboro
Cornwell, A. M.	Lincolnton
Costner, W. V.	Lincolnton
Cotten, Clyde E., (Hon.)	Asheville
Couch, V. F.	Winston-Salem
Cox, E. L., (Hon.)	Jacksonville
Cox, G. S.	Tabor
Cox, Thomas A.	Hertford
Cozart, B. F.	Reidsville
*Cozart, S. R.	Greensboro
*Cozart, W. S.	Fuquay Springs
*Craig, S. Douglas	Winston-Salem
*Cranmer, J. B.	Wilmington
Craven, Thomas	Huntersville
Craven, W. W.	Charlotte
Crawford, Robt. H.	Rutherfordton
*Crisp, S. M.	Greenville
Cromartie, R. S.	Elizabethtown
Crouch, T. D.	Stony Point
*Crowell, A. J., (Hon.)	Charlotte
Crowell, L. A., (Hon.)	Lincolnton
*Crowel, L. A., Jr.	Lincolnton
*Crumpler, Paul	Clinton
*Cummings, M. P.	Reidsville
Cunningham, C. E.	Brevard
*Currie, D. S.	Parkton
*Cutchin, J. Henry	Whitakers
*Dale, G. C.	Goldsboro
Daligny, Charles, (Hon.)	Troy
Dalton, Wm. N.	Winston-Salem
*Daniel, N. C.	Oxford
Daniels, O. C., OALR	Oriental
Daniels, R. L.	New Bern
Darden, O. B.	Richmond, Va.
Davenporot, C. A.	Hertford
*Davidian, Varton A.	Smithfield
Davidson, Jno. E. S., (Hon.)	Charlotte
*Davis, F. M.	Canton
Davis, George	Beaufort
Davis, J. Franklin	High Falls
*Davis, Jas. W.	Statesville
*Davis, P. B., Sheraton Hotel	High Point
*Davis, R. B.	Greensboro
*Davis, Stephen W.	Charlotte
Davis, Thomas W., OALR, (Hon.)—	—Winston-Salem
Davis, T. M.	Charlotte
*Davison, Wilburt C.	Durham
Dawson, W. E.	Hookerton
Deans, A. W.	Battleboro
DeArmon, J. McC., (Hon.)	Charlotte
*Dees, D. A., OALR	Bayboro
Dees, R. E.	Greensboro
Dees, Rigdon O.	Greensboro
DeLaney, C. O.	Winston-Salem
*DeLoatch, M. W.	Tarboro
*Dewar, William B.	Raleigh
*Dick, Julius V.	Gibsonville
*Dickie, J. W.	Southern Pines
*Dickinson, E. T., (Hon.)	Wilson
*Dickson, M. S.	Oakboro
Dillard, G. P.	Draper
*Dixon, G. G.	Ayden
Dixon, Guy E., (Hon.)	Hendersonville
Dixon, Hubert C.	Leaksville
*Dixon, Wm. H., (Hon.)	Kinston
Dodge, Eva F.	Winston-Salem
*Duckett, V. H.	Canton
Duffy, R. N.	New Bern
Duguid, Jos. W.	Dover
Duncan, A. C.	Forest City
*Duncan, S. A.	Benson
Dunlap, L. V.	Albemarle
*Durham, C. W.	Greensboro
*Eagle, J. C.	Spencer
*Eagle, Watt W.	Durham
*Easom, H. F.	Sanatorium
Eaves, Rupert S.	Rutherfordton
Eckel, O. F.	Asheville

*Present at 1933 Meeting at Raleigh.

Name	*Address*
Eddleman, Hall M., (Hon.)	Gastonia
Edgerton, Jas. L., (Hon.)—	—Hendersonville
Edwards, B. O.	Asheville
Edwards, C. J.	Raleigh
Edwards, F. D.	Lawndale, Rt. 1
*Edwards, J. D., (Hon.)	Siler City
Edwards, V. E.	Greensboro
*Eldridge, Chas. P.	Raleigh
Elias, Lewis W.	Asheville
*Eller, Albert J.	Readybranch
*Ellington, A. J., OALR	Burlington
Elliott, A. H.	Wilmington
Elliott, J. A.	Charlotte
*Elliott, W. F., OALR	Lincolnton
Ellis, R. C., (Hon.)	Shelby
Erwin, Evan A.	Laurinburg
Evans, J. E.	Wilmington
*Evans, L. B.	Windsor
Everett, A. C.	Rockingham
Faison, Elias	Charlotte
Faison, Yates W.	Charlotte
Falls, Fred	Lawndale
*Farrington, R. K.	Thomasville
Farthing, L. E.	Wilmington
*Fassett, Burton W., OALR	Durham
Faulk, J. G.	Pembroke
Fauntleroy, Jas. W.	Zirconia
Fearing, Isaiah	Elizabeth City
Felton, R. L.	Carthage
*Felts, Robt. L.	Durham
Fenner, Edwin F.	Henderson
Ferebee, C. G.	Morehead City
Ferguson, R. T.	Charlotte
Ferneyhough, W. T.	Reidsville
*Fields, Leonard E.	Chapel Hill
*Finch, O. E.	Raleigh
*Fitzgerald, J. H., OALR	Smithfield
*Flagge, Philip W.	High Point
*Fleetwood, Joe A.	Conway
Fleming, Fred	Buies Creek
Flippin, J. M.	Pilot Mountain
Flippin, Samuel T., (Hon.)	Siloam
Flowers, Clarence A.	Wendell
*Flowers, C. E.	Zebulon
Floyd, H. T.	Oteen
Floyd, L .D.	Fair Bluff
*Ford, D. E.	Washington
Forrest, D. E.	Hillsboro
*Fortune, Alex F.	Greensboro
*Foster, H. H.	Norlina
*Foster, J. F.	Sanford
Fox, N. A.	Greensboro
*Fox, P. G.	Raleigh
Fox, Robert Eugene	Asheville
Francis, Wm. G.	Waynesville
Frazier, J. W.	Badin
Freeman, J. D., OALR	Wilmington
Freeman, R. H.	Raleigh
Freeman, Wm. T.	Biltmore
Fresh, W. M.	Hickory
*Frizzelle, M. T.	Ayden
Frye, Glenn R.	Hickory
Fuquay, G. L.	Coates
Futrell, L. M.	Murfreesboro
*Gage, L. G.	Charlotte
Gainey, John W.	Fayetteville
Gallant, Robt. M.	Charlotte
Galloway, W. C., (Hon.), OALR—	—Wilmington
Gamble, J. F.	Lincolnton
Gamble, J. R.	Lincolnton
Gambrell, Grover C.	Lexington
Gantt, L. Rosa H.	Tryon
*Gardner, C. E., Jr.	Durham
*Garrenton, Cecil	Bethel
*Garrett, F. B.	Rockingham
*Garrison, D. A., (Hon.)	Gastonia
*Garriss, F. H.	Lewiston
Garvey, Fred K.	Winston-Salem
Garvey, R. R.	Winston-Salem
Gaskins, J. S.	Albemarle
Gaskins, Lewis R.	Albemarle
*Gaul, Jno. Stuart	Charlotte
*Geddie, K. B.	High Point
*Gentry, Geo. W.	Roxboro
George, John C.	Oteen
Gibbon, James W.	Charlotte
*Gibbon, Robert L., (Hon.)	Charlotte
Gibbs, N. M.	New Bern
*Gibson, John S.	Gibson
*Gibson, M. R., OALR	Raleigh
Gilmore, C. M.	Greensboro
Gilmore, W. D.	Howell, Mich. (Iredell-Alexander)
Gilreath, Frank H., (Hon.)—	—North Wilkesboro
Glascock, Joy H.	Greensboro
Glenn, C. F.	Rutherfordton
*Godwin, G. C.	Oteen
*Gold, Ben	Shelby
Gold, Chas. F.	Rutherfordton
*Gold, T. B.	Shelby
*Goley, Willard Coe	Graham
Coley, Wm. R.	Shallotte
*Goley, Wm. Rankin, (Hon.)	Graham
Goode, T. V.	Statesville
*Goodwin, A. W., (Hon.)	Raleigh

*Present at 1933 Meeting at Raleigh.

Name	*Address*
*Goodwin, O. S.	Apex
*Gorham, H. J.	Durham
Goudelock, Jno. J.	Monroe
*Goudge, Mabel E.	West Durham
Gouge, A. E.	Bakersville
Gouger, Geo. J., (Hon.)	Concord
Gove, Anna M., (Hon.)	Greensboro
*Grady, Jas. C., (Hon.)	Kenly
*Grady, Leland V.	Wilson, Rt. 2
Grady, Wm. Earle, (Hon.)	Tryon
Gray, Eugene P.	Winston-Salem
Grayson, C. S.	High Point
Green, Thos. M.	Wilmington
Green, Wm. W.	Tarboro
*Greene, Jos. B., OALR	Asheville
Greenwood, A. B.	Asheville
Gregg, A. D.	Liberty
Grier, Charles T.	Carthage
*Griffin, H. L.	Star
Griffin, M. A.	Asheville
*Griffin, W. R.	Asheville
Griffith, F. W.	Asheville
Griffith, L. M., OALR	Asheville
Griggs, W. T., (Hon.)	Popular Branch
*Grimes, W. L.	Winston-Salem
*Groome, J. G.	High Point
*Groves, R. B.	Lowell
Guyton, C. L.	Monroe
*Gwyn, H. L.	Yanceyville
*Hackney, Ben H.	Lucama
Hagaman, J. B.	Boone
*Halford, Jos. W.	Lillington
*Hamblen, E. C.	Durham
Hamer, Douglas, Jr.	Lenoir
Hamer, W. A.	Chadwick
*Hamilton, John H.	Raleigh
Hammond, A. F.	Polloksville
Hand, Edgar H.	Charlotte
Hanes, F. M.	Winston-Salem
*Hansen-Pruss, O. C. E.	Durham
Harbison, J. W.	Shelby
Hardee, W. P.	Durham
*Harden, Graham	Burlington
Harden, R. N.	Greensboro
*Hardin, E. R.	Lumberton
Hardin, R. H.	Banner Elk
Harding, S. A.	Mocksville
*Hardy, Ira M., OALR, (Hon.)	Kinston
*Harper, J. H.	Snow Hill
Harrill, L. B.	Caroleen
Harris, F. R., (Hon.)	Henderson
*Harris, W. T.	Troy
Harrison, Edmund, (Hon.)	Greensboro
*Harrison, Edward T.	High Point
Harrison, H. H.	Asheville
Harriss, Andrew H., (Hon.)	Wilmington
*Hart, Deryl	Durham
Hart, O. J.	Winston-Salem
Hart, V. K.	Charlotte
Hathcock, Thos. A., (Hon.)	Norwood
*Harvey, W. W.	Greensboro
Hayes, A. H.	Fairmont
Hayes, R. B.	Hillsboro
Hays, B. K., (Hon.)	Oxford
*Haywood, C. L., Jr.	Durham
*Haywood, Hubert B., Jr.	Raleigh
*Hayworth, C. A.	Asheboro
Head, W. T.	Campobello, S. C., Rt. 4 (Rutherford Co.)
*Hedrick, C. R.	Lenoir
*Hege, J. Roy	Winston-Salem
Helms, J. B.	Morganton
Helsabeck, C. J.	Walnut Cove
Hemphill, C. H.	Valdese
Henderson, Jno. P.	Jacksonville
*Henry, T. B.	Rockingham
Hensley, Chas. A.	Asheville
Herbert, Fred Lee	Andrews
Herbert, Wm. P.	Asheville
Herman, Chas. B.	Statesville
Hester, Jos. R.	Wendell
*Hiatt, H. B.	High Point
Hicks, Calvin S.	Durham
Hicks, I. F., (Hon.)	Dunn
*Hicks, V. M., Oph.	Raleigh
Highsmith, Charles, (Hon.)	Dunn
*Highsmith, J. D.	Fayetteville
*Highsmith, J. F., (Hon.)	Fayetteville
Highsmith, J. F., Jr.	Fayetteville
*Highsmith, Seavy, (Hon.)	Fayetteville
*Highsmith, W. C.	Fayetteville
Hill, A. L.	Rutherfordton
Hill, J. N.	Murphy
*Hill, M. D.	Raleigh
*Hill, Wm. I.	Albemarle
Hines, E. R.	Rocky Mount
Hipp, Edw. R.	Charlotte
Hipps, A. G. T.	Asheville
*Hocutt, Battle A.	Clayton
*Hodgin, H. H.	Red Springs
*Hoggard, J. T.	Wilmington
*Hollingsworth, E. T.	Goldsboro
*Holloway, Joseph C.	Durham
Holloway, Robert Lee, (Hon.)	—West Durham
Hollyday, W. M., OALR	Asheville
*Holmes, A. B.	Fairmont
*Holmes, Geo. W.	Winston-Salem

*Present at 1933 Meeting at Raleigh.

Name	*Address*
*Holt, D. W.	Greensboro
*Holt, Wm. P., (Hon.)	Erwin
Holt, Wm. P., Jr.	Erwin
*Hooks, Thel, (Hon.)	Smithfield
Hooper, Jos. W.	Wilmington
*Hoover, C. H.	Crouse
Horton, M. C., OALR	Raleigh
*Horton, W. C.	Raleigh
Houck, Albert, F., (Hon.)	Lenoir
Houser, E. A.	Shelby
*Houser, Forest M.	Cherryville
Houser, O. J.	Charlotte
Hovis, L. W., OALR	Charlotte
*Howard, C. E.	Goldsboro
Howell, W. L.	Ellerbe
Hubbard, Chas. C., (Hon.)	Farmer
*Hubbard, Fred C.	North Wilkesboro
*Hudson, C. C.	Greensboro
Hunt, J. F.	Spindale
Hunt, J. S.	Charlotte
*Hunt, W. Bryce	Lexington
Hunter, Frank P.	Warrenton
*Hunter, J. P.	Cary
Hunter, L. W., (Hon.)	Charlotte, Rt. 1
Hunter, W. Myers	Charlotte
*Hunter, W. C.	Wilson
Hurdle, S. W.	Winston-Salem
Hutchens, E. M.	North Wilkesboro
*Hutchinson, S. S.	Bladenboro
Hyde, Francis Edward	Beaufort
Ingersoll, Louise M.	Asheville
Ingram, Chas. B., (Hon.)	Mt. Gilead
*Ivey, H. B.	Goldsboro
Ivey, R. R., U.S.P.H.S.	Biltmore
Jackson, C. C.	Pinetown
*Jackson, Walter Leo	High Point
Jacocks, W. P.	New York City (Lincoln Co.)
James, Albert W.	Laurinburg
James, F. P.	Laurinburg
*James, W. D.	Hamlet
Jarman, F. G.	Roanoke Rapids
*Jennings, C. W., OALR	Greensboro
*Jennings, R. G.	Thomasville
Jervey, A. J.	Tryon
Jett, Samuel G.	Reidsville
Jewett, R. D., (Hon.), OALR—	—Wilmington
John, Peter, (Hon.)	Laurinburg
*Johnson, C. T.	Red Springs
*Johnson, Floyd	Whiteville
*Johnson, Geo. W.	Wilmington
*Johnson, Harry L.	Elkin
Johnson, H. H.	Louisburg
Johnson, John B.	Old Fort
Johnson, Jos. L.	Graham
*Johnson, J. R.	Ramseur
Johnson, N. M., (Hon.)	Durham
Johnson, Otis H.	Morehead City
*Johnson, Thos. C.	Lumberton
Johnson, W. A.	Reidsville
Johnson, W. C.	Canton
*Johnson, Wingate M.	Winston-Salem
Johnston, Christopher	Durham
Johnston, J. G., OALR	Charlotte
*Johnston, W. W.	Manteo
Jonas, John F., (Hon.)	Marion
Jones, A. G., (Hon.)	Walnut Cove
*Jones, Beverly N., OALR—	—Winston-Salem
*Jones, Carey C.	Apex
Jones, Catesby	Asheville
Jones, Clara E., (Hon.)	Goldsboro
Jones, R. Duval	New Bern
Jones, T. Lester	Lansing
*Jones, Wm. M., (Hon.)	Greensboro
Jones, W. S.	Nashville
Jordan, Chas. S., (Hon.)	Asheville
*Jordan, T. M., (Hon.)	Gainesville, Fla. (Wake Co.)
*Jordan, Wm. S., OALR	Fayetteville
*Judd, Eugene C.	Raleigh
*Judd, James M., (Hon.)	Varina
*Julian, Chas. A., (Hon.)	Greensboro
Jurney, Peter C.	Turnersburg
Justice, Gaston B.	Marion
Kapp, Henry H., (Hon.)	Winston-Salem
*Keiger, Jas. A.	Greensboro
Keiger, O. R.	Winston-Salem
Kelly, ,Luther W.	Charlotte
Kendall, B. H.	Shelby
Kende, Tibor N.	Jersey City, N. J.
Kendrick, R. L.	Elizabeth City
Kenfield, H. W.	Hatteras
*Kennedy, John P.	Charlotte
*Kent, Alfred A., (Hon.)	Winter Park, Florida, (Caldwell, Co.)
Ketner, Fred Y.	Concord
Kerns, T. C., OALR	Durham
Kerr, John D.	Clinton
*Kerr, Jas. E., (Hon.)	Winston-Salem
Kibler, W. H.	Morganton
Killian, Frank M.	Franklin
Kimberly, David, Jr.	Hot Springs
King, Edward	Asheville
*King, E. S.	Wake Forest
King, Parks M., (Hon.)	Charlotte
King, Richard M.	Concord

*Present at 1933 Meeting at Raleigh.

Name	*Address*
King, Robt. Rogers	Ellenboro
*Kinlaw, Wm. B	Rocky Mount
Kinsman, Henry F	Hamlet
Kirby, Guy S., (Hon.)	Marion
*Kirby, W. L	Winston-Salem
Kirkpatrick, W. L	Waynesville
*Kirksey, James J	Morganton
Kirksey, W. A	Hope Mills
*Kitchin, Thurman D	Wake Forest
*Kluttz, DeWitt	Washington
Knight, Floyd L	Sanford
*Knight, Wm. P., (Hon.)	Greensboro
*Knowles, D. L	Rocky Mount
Knox, A. W., (Hon.)	Raleigh
Knox, J. C	Goldsboro
Koonce, S. Everett, OALR, (Hon.)—	—Wilmington
*Kornegay, Lemuel W	Rocky Mount
Kremer, C. E., Jr	Charlotte
*Lackey, M. A	High Point
*Lackey, W. J	Fallston
*Lafferty, Robt. H	Charlotte
Lambert, C. F	Spruce Pine
Lamm, I. W., (Hon.)	Raleigh
*Lancaster, F. J	Lexington
Lancaster, N. F	Waynesville
*Lane, John L., OALR	Rocky Mount
Lane, P. P	Wilson
Lassiter, H. G	Weldon
Lassiter, V. C	Winston-Salem
Latham, Jos. R	New Bren
*Laton, Jas. F., OALR	Albemarle
Lattimore, E. B	Shelby
*Lawrence, B. J	Raleigh
Lea, J. I	Tryon
*Le Bauer, S. F	Greensboro
Ledbetter, Jas. McQ., OALR—	—Rockingham
*Lee, J. Marshall	Newton Grove
Lee, Lawrence V	Lattimore
*Lee, Mike	Kinston
*Lee, Thomas L	Kinston
*Leinbach, Robt. F	Charlotte
Leonard, J. C., Jr	Lexington
Lewis, C. W	Beaufort
Lewis, Geo. W., (Hon.)	Wilson
Lewis, H. W., (Hon.)	Jackson
Lewis, J. S	Hickory
*Liles, L. C	Raleigh
*Lily, Jas. M., OALR	Fayetteville
Linville, A. Y., (Hon.)	Winston-Salem
*Linville, W. C	Goldsboro
Lister, E. W	Elizabeth City
Lister, J. L	Mount Olive
Little, Lonnie M	Statesville
*Livingston, E. A., OALR	Gibson
Lloyd, B. B	Carrboro
Lockett, Everett A., (Hon.)—	—Winston-Salem
Logan, F. W. H	Rutherfordton
*London, Arthur Hill	Durham
Long, Benj. Leroy	Glen Alpine
Long, Edgar M	Hamilton
Long, E. F	High Point
Long, Glenn	Newton
Long, H. F., (Hon.)	Statesville
Long, R. H	Morganton
*Long, T. W. M	Roanoke Rapids
*Long, V. McK	Winston-Salem
Long, Z. F	Rockingham
Lord, Marjery J	Montreat
*Love, Bedford E	Roxboro
Love, Wm. M	Monroe
Lovelace, Thos. C	Henrietta
*Lowery, John R	Salisbury
*Lubchenko, N. E	Harrisburg
*Lutterloh, I. Hayden, Jr	Sanford
Lyday, C. E	Gastonia
*Lyday, R. O	Greensboro
Lyle, S. H., (Hon.)	Franklin
Lyon, Henry Wise	Windsor
MacConnell, John W., OALR—	—Davidson
*MacFadyen, Paul R	Concord
MacFayden, Paul R., Jr	Concord
MacKethan, D. G	Fayetteville
*MacNider, Wm. deB	Chapel Hill
MacRae, J. D., Jr	Asheville
*McAnnally, Jas. McG	High Point
McAnally, Wm. J., (Hon.)	High Point
McBee, Paul	Bakersville
*McBrayer, L. B. (Hon.)	Southern Pines
*McBryde, Angus M	Durham
McBryde, M. H	Reidsville
*McCain, P. P	Sanatorium
*McCain, Wm. R., (Hon.)	High Point
*McCall, A. C., OALR	Asheville
McCampbell, John, (Hon.)	Morganton
McCants, C. H	Winston-Salem
*McClees, E. C	Elm City
McClelland, Joseph O	Maxton
McCoy, Thos. M	Charlotte
McCotter, St. Elmo	Bayboro
McCracken, C. M	Fairview
*McCracken, J. R., (Hon.), OALR—	—Waynesville
McCracken, M. H	Canton
*McCuiston, A. M	Kinston

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Name	*Address*
*McCutcheon, W. B.	Durham
McDade, B. B.	Burlington
McDowell, F. C.	Zebulon
*McDowell, R. H.	Belmont
McDuffie, W. N.	Hemp
McElroy, J. L.	Marshall
*McElwee, Ross S.	Statesville
*McFayden, O. L.	Fayetteville
*McGeachy, R. S., (Hon.)	Greenville
*McGee, Jas. W., (Hon.)	Raleigh
McGee, J. M.	Greensboro
*McGehee, Jno. Wm.	Reidsville
McGregor, Geo. D.	Charlotte
McGoogan, Benj. J.	Morven
McGowen, Claudius	Plymouth
McIntosh, D. M.	Old Fort
McIntosh, W. R.	Rockingham
*McIntrye, Stephen	Lumberton
*McIver, Lynn, (Hon.)	Sanford
*McKay, Hamilton W.	Charlotte
*McKay, Jos. F., (Hon.)	Buies Creek
*McKay, Robert W.	Charlotte
*McKay, W. P.	Fayetteville
*McKee, John S.	Raleigh
*McKnight, R. B.	Charlotte
McLaughlin, C. S., (Hon.)	Charlotte
McLaughlin, J. E., (Hon.)	Statesville
McLean, Allen	Morganton
*McLean, John W.	Godwin
*McLelland, W. D.	Mooresville
McLemore, Geo. A.	Smithfield
McLeod, A. H.	Aberdeen
*McLeod, J. H.	Fayetteville
*McLeod, N. H.	Raleigh
McLeod, Vida C.	Southern Pines
McMillan, B. F., (Hon.)	Red Springs
McMillan, J. M.	Candor
*McMillan, R. D.	Red Springs
McMillan, W. D., (Hon.)	Wilmington
McNairy, Caroline	Lenoir
*McNeill, Jas. H.	North Wilkesboro
McPhail, L. D.	Charlotte
*McPherson, C. W., OALR	Burlington
McPherson, R. G.	Saxapahaw
*McPherson, S. D., OALR	Durham
Mackie, Geo. C.	Wake Forest
*Macon, G. H.	Warrenton
*Mahoney, A. F.	Monroe
*Malloy, S. A., (Hon.)	Yanceyville
*Maness, A. K.	Greensboro
*Mangum, C. P.	Kinston
*Mangum, C. S.	Chapel Hill
Mann, E. M.	Moyock
*Mann, I. Thurman	High Point
Mann, S. M.	Moyock
*Manning, I. H., (Hon.)	Chapel Hill
Manning, John M., (Hon.)	Chapel Hill
Mariner, N. B.	Belhaven
Markham, Blackwell	Durham
Marr, M. W.	Pinehurst
Marsh, Frank B.	Salisbury
Martin, J. A.	Lumberton
*Martin, J. F.	Dunn
Martin, J. H.	Red Oaks
*Martin, J. W.	Roanoke Rapids
Martin, Moir S.	Mt. Airy
Martin, W. C., OALR	Mocksville
Martin, William F.	Charlotte
Martin, W. J.	Richmond, Va. (Mecklenburg)
Mason, C. N.	Newport
*Massey, C. C.	Smithfield
*Matheson, J. Gaddy	Ahoskie
Matheson, James P.	Charlotte
*Mattheson, R. A.	Raeford
Matthews, Vann M.	Charlotte
Matthews, B. B.	Shelby
*Matthews, James O., (Hon.)	—Clinton, R. F. D.
*Matthews, M. L.	Sanford
Matthews, Wm. W.	Spray
Maxwell, C. S.	Beaufort
Mayer, W. B.	Charlotte
Meadows, W. J.	Greensboro
Mears, George A.	Asheville
*Melvin, W. C.	Linden
Menzies, H. C., (Hon.)	Hickory
Merritt, John H.	Woodsdale, R. 1
*Milan, D. F.	Raleigh
*Milham, C. G.	Sanatorium
Miller, J. F.	Marion
Miller, O. L.	Charlotte
Miller, Robert B., (Hon.)	Goldsboro
*Milliken, J. S.	Southern Pines
*Misenheimer, Thos. M.	Charlotte
*Mitchell, Geo. W.	Wilson
Mitchell, Paul H.	Ahoskie
Mitchell, R. C.	Mt. Airy
Mitchell, T. B.	Shelby
*Mitchell, Z. P.	Weldon
*Mitchener, J. S., OALR	Raleigh
*Mock, Frank L.	Lexington, R. 3
Monk, Henry L.	Salisbury
*Monroe, C. R.	Pinehurst
*Montgomery, Harry M.	Burlington
Montgomery, Kenneth E.	Asheville
Moore, Alexander W.	Charlotte
Moore, Chas. E. (Hon.)	Wilson

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Name	*Address*
*Moore, B. D.	Mount Holly
Moore, D. B.	Badin
*Moore, D. F.	Shelby
*Moore, Henry B.	Graham
Moore, Jos. N.	Marshall
Moore, Julian A.	Asheville
Moore, L. W.	
*Moore, Oren	Charlotte
Moore, R. A.	Charlotte
Moore, R. A.	Winston-Salem
*Moore, T. V.	Delco
*Moore, W. Houston	Wilmington
Morgan, B. E.	Asheville
Morgan, G. A.	Asheville
*Morris, Jos. A., (Hon.)	Oxford
Morton, J. X.	Faison
Moseley, Chas. W., (Hon.)	Greensboro
*Moseley, Z. V.	Kinston
Moss, G. O.	Cliffside
Motley, Fred Elliott	Charlotte
Mudgett, W. C.	Southern Pines
*Mullen, M. P.	Wilson
Munroe, H. Stokes	Charlotte
*Munroe, J. P., (Hon.)	Charlotte
*Munt, H. F.	Winston-Salem
Murphy, Gibbons W.	Asheville
*Murphy, W. B.	Snow Hill
*Murray, R. L.	Raeford
*Myers, Alonzo	Charlotte
Myers, D. L.	Jennings
*Myers, John Q., (Hon.)	Charlotte
*Nalle, B. C.	Charlotte
Nance, C. L.	Charlotte
*Nash, J. Fred	St. Paul
Neal, Kemp P.	Raleigh
*Neal, Paul N.	Raleigh
Neblett, H. C.	Charlotte
Nelson, R. J., (Hon.)	Robersonville
*Neville, C. H.	Scotland Neck
Newby, G. E.	Hertford
Newcombe, A. P., Jr.	Henderson
*Newell, H. A., OALR	Henderson
Newland, Chas. L.	Brevard
Newman, Harold H.	Salisbury
Newton, Howard L.	Charlotte
Nichols, A. A.	Sylva
Nichols, Asbury S.	Sylva
Nichols, Austin F.	Roxboro
*Nichols, R. E., Jr.	Durham
*Nichols, Rhodes E., (Hon.)	—Durham, Rt. 8
*Nicholson, B. M.	Enfield
Nicholson, C. R.	Statesville
Nicholson, N. G.	Mt. Gilead
Nicholson, P. A., (Hon.)	Washington
*Nisbet, D. Heath	Charlotte
Nisbet, Walter O., (Hon.)	Charlotte
*Noble, R. P.	Raleigh
*Nobles, Jos. E., (Hon.)	Greenville
*Noblin, Roy L.	Oxford
Norburn, C. S.	Asheville
Norburn, R. L.	Asheville
Norfleet, A. C.	Tarboro
*Norfleet, E. P.	Roxobel
*Norman, J. H.	Raleigh
*Norman, J. S., OALR	Hockory
*Norment, W. B.	Greensboro
*Northington, J. M.	Charlotte
*Norton, Roy	Rocky Mount
Nowlin, Preston	Charlotte
Oates, George	Grover
*O'Briant, A. L.	Sanford
*Odell, J. W.	Dunn
*Ogburn, H. H.	Greeensboro
Olive, P. W.	Fayetteville
*Oliver, A. S.	Raleigh
*Oliver, Robt. D.	Pine Level
Ormand, J. W.	Monroe
Orr, Chas. C.	Asheville
Osborne, Joe. E.	Rosman
Owen, D. S.	Fayetteville
*Owen, J. F.	Dix Hill, Raleigh
*Owenby, Arthur D.	Greensboro
*Pace, K. B.	Greenville
*Paddison, J. R.	Kernersville
*Page, B. W.	Trenton
Palmer, M. C.	Tryon
Parker, G. E., (Hon.)	Benson
*Parker, H. R.	Greensboro
*Parker, O. L.	Clinton
Parker, Paul G.	Erwin
Parker, S. F.	Shelby
*Parker, W. T.	Fayetteville
Parks, Hugh	Elkin
Parrott, Albert DeK.	Kinston
*Parrott, Jas. M., (Hon.), OALR—	—Raleigh
Parrott, M. C.	Kinston
Parrott, Wm. T., (Hon.)	Kinston
*Parsons, W. H.	Ellerbe
Pate, J. F.	Canton
*Pate, F. J., OALR	Greensboro
*Pate, Jas. G.	Gibson
Patrick, Geo. R., Jr.	Bessemer City
*Patterson, Fred M.	Greensboro
*Patterson, Reid	Charlotte
Peede, A. W.	Lillington
Peeler, Clarence N., OALR	Charlotte

*Present at 1933 Meeting at Raleigh.

Name	*Address*
Peeler, John H.	Salisbury
*Peery, Vance P.	Kinston
*Peete, C. H.	Warrenton
Pendleton, Wilson	Asheville
*Pepper, Jno. Kerr	Winston-Salem
Perkins, Jno. R., OALR	Winston-Salem
*Perry, A. H.	Wood
*Perry, D. R.	Durham
*Perry, H. B.	Boone
Perry, H. G.	Louisurg
*Person, Edgar C., OALR	Pikeville
*Person, J. B., Jr., (Hon.)	Selma
Persons, Elbert Lapsley	Durham
Peters, W. A.	Elizabeth City
Peterson, C. A.	Spruce Pine
*Petrie, Robt. Wm., (Hon.), OALR—	—Lenoir
*Pfohl, Samuel F., (Hon.)	Winston-Salem
Phifer, Edward W.	Morganton
Phillips, C. C.	Charlotte
*Phillips, C. H.	Thomasville
Pickett, John A.	Burlington, R.F.D., 1
Pinkerton, F. C.	Pinehurst
Pittman, E. E.	Oak City
*Pittman, M. A.	Wilson
*Pittman, R. L.	Fayetteville
*Poate, E. M.	Southern Pines
Pollard, W. B.	Winton
Pollock, Raymond	New Bern
*Pool, B. B.	Winston-Salem
*Poole, C. G.	Winston-Salem
Poole, C. T.	St. Pauls
Pope, Henry T., (Hon.)	Lumberton
Post, J. J.	Greensboro
*Powell, Albert H.	Durham
*Powell, Herman S.	Morrisville
Powell, Jesse A.	Edenton
Powers, Frank P.	Wilmington
Powers, John B.	Wake Forest
Pressly, Geo. W., (Hon.)	Charlotte
*Pressly, J. L.	Statesville
Price, K. A.	Hickory
Pritchard, G. L.	Black Mountain
*Proctor, I. M.	Raleigh
*Purdy, J. J.	Oriental
*Putney, R. H.	Elm City
Quickel, Thos. C.	Gastonia
Quinn, Robert F.	Magnolia
*Raby, J. G.	Tarboro
*Rainey, W. T.	Fayeteville
Ramseur, W. L.	Kings Mountain
Ramsey, James G.	Cleveland, O. (Rowan Co.)
*Rand, E. G.	Raleigh
*Rankin, S. W.	Winston-Salem
*Rankin, Watson S., (Hon.)	Charlotte
*Ranson, J. Lester	Charlotte
Ravenel, S. F.	Greensboro
Ray, F. L.	Charlotte
*Ray, John B.	Leaksville
*Ray, O. L.	Raleigh, Rt. 1
*Ray, S. P.	Leaksville
Rea, G. L.	Charlotte
*Reaves, C. R., OALR	Greensboro
*Reaves, W. P., OALR	Greensboro
Redding, Alex H., (Hon.)	Cedar Falls
*Redfern, T. C.	Winston-Salem
Reed, D. H.	Maxton
*Reeves, J. L.	Canton
*Reeves, Robert J.	Durham
Reeves, R. J.	Leicester
*Register, F. M., (Hon.)	Goldsboro
Reid, Geo. P., (Hon.)	Forest City
Reitzel, C. E., (Hon.)	High Point
Reynolds, C. V., (Hon.)	Asheville
Rhodes, Jas. S.	Williamston
*Rhudy, Booker E.	Greensboro
*Rhyne, Robt. E.	Gastonia
Rhyne, S. A.	Statesville
Ricks, Leonard E., (Hon.)	Fairmont
Riddle, J. B.	Morganton
*Riggsee, A. E.	Durham
*Ringer, Paul H.	Asheville
Riter, J. F.	Fontana
*Roberson, Foy	Durham
Roberts, Bryan N.	Hillsboro
*Roberts, B. W.	Durham
*Robertson, E. M.	Durham
Robertson, James F.	Wilmington
*Robertson, J. N.	Fayetteville
*Robertson, L. H.	Salisbury
Robinson, C. W.	Charlotte
*Robinson, D. E.	Burlington
Robinson, E. E.	Concord
Robinson, Robt. S.	Greensboro
Robinson, W. A.	Old Fort
*Robinson, W. L.	Mars Hill
*Rodgers, W. D., Jr.	Warrenton
Rodman, J. C., (Hon.)	Washington
Rodman, R. B.	Wilmington
Rodwell, Jno. W., (Hon.)	Mocksville
*Rogers, Jas. Rufus	Raleigh
Rogers, W. A., (Hon.)	Franklin
*Root, Albert S.	Raleigh
Ross, Geo. H.	East Durham
*Ross, Robert A.	Durham
*Rosser, R. G.	Vass
*Rourk, M. H.	Wilmington

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Name	*Address*
Rousseau, J. P.	Winston-Salem
*Royal, Ben F.	Morehead City
Royal, D. M.	Salemburg
Royall, M. A.	Elkin
*Royster, Hubert A., (Hon.)	Raleigh
Royster, S. S.	Shelby
*Royster, Thomas H.	Roanoke Rapids
*Royster, Thos. S.	Henderson
Rucker, A. A.	Rutherfordton
Rudisill, J. D.	Lenoir
Ruffin, D. W.	Ahoskie
*Ruffin, J. M.	Durham
Russell, Jesse M.	Canton
Russell, W. M.	Asheville
Sabiston, Frank, OALR	Kinston
Sadler, R. C.	Whiteville
Salbia, M. M., OALR	Wilson
Salley, E. McQueen	Saluda
Salmons, H. C.	Elkin
*Salmons, L. R.	Winston-Salem
Sample, R. C.	Hendersonville
Sams, W. A.	Marshall
*Sasser, T. J.	Charlotte
Saunders, Joseph H.	Williamston
Saunders, John Rudolph	Morganton
*Saunders, S. A.	Aulander
*Saunders, S. Stewart	High Point
*Sawyer, Chas. J., (Hon.), OALR—	—Windsor
*Sawyer, W. W.	Elizabeth City
Schaffle, Karl	Asheville
*Schenk, Sam M.	Shelby
Schoenheit, E. W.	Asheville
Schonwald, J. T., (Hon.)	Wilmington
*Schoonover, R. A.	Greensboro
*Schuler, J. E.	East Durham
Scott, S. F.	Union Ridge
Scruggs, W. Marvin	Charlotte
*Seay, T. W.	East Spencer
Sessoms, E. T.	Roseboro
Sevier, D. E., (Hon.)	Asheville
Sevier, J. T., (Hon.)	Asheville
Sewell, Marion H.	Jackson
*Shafer, Irving E.	Salisbury
*Shands, Alfred Rives, Jr.	Durham
*Sharp, O. L.	Greensboro
*Sharpe, C. R.	Lexington
Sharpe, F. A.	Greensboro
Sharpe, Frank L.	Statesville
*Shaver, W. T.	Albemarle
*Shaw, J. A.	Fayetteville
*Shaw, L. R.	Statesville
*Shaw, W. G., (Hon.)	Wagram
*Shelburne, P. A.	Greensboro

Name	*Address*
*Sherrill, C. L.	Statesville
Shields, Henry B., (Hon.)	Carthage
Shirley, H. C., OALR	Charlotte
Shull, J. Rush	Charlotte
*Sidbury, J. B.	Wilmington
*Sigman, F. G.	Spencer
Sikes, G. L., (Hon.)	Salemburg
*Simmons, L. L., OALR	Greensboro
Simmons, R. R.	Winston-Salem
Simpson, H. H.	Altamahaw
Singletary, G. C.	Clarkton
*Sink, C. S.	N. Wilkesboro
*Sisk, C. N.	Rockingham
*Slate, John S.	Winston-Salem
*Slate, J. W.	High Point
Slate, Wesley C.	Spencer
Slaughter, F. G.	Oxford
*Sloan, A. B.	Mooresville
*Sloan, D. B., OALR	Wilmington
*Sloan, H. L., Oph.	Charlotte
Sloan, Wm. H.	Garland
Sloop, Eustace H.	Crossnore
*Small, Victor R.	Clinton
*Smith, A. Jones	Black Creek
Smith, Alick T.	Greensboro
*Smith, Annie T.	Durham
Smith, B. R.	Asheville
Smith, D. L.	Saluda
*Smith, D. T.	Durham
*Smith, F. C., OALR	Charlotte
Smith, F. G.	Southport
Smith, F. L.	Burlington
Smith, G. M.	Monroe
Smith, Harold Benj.	N. Wilkesboro
Smith, J. A.	Lexington
Smith, James T.	Westfield
Smith, John McNeill	Rowland
*Smith, Jos. E.	Windsor
*Smith, O. F.	Scotland Neck
*Smith, R. E.	Mt. Airy
*Smith, Sidney	Raleigh
Smith, W. F.	Chadbourn
*Smith, W. G.	Wendell
*Smith, William Gordon	Thomasville
*Smith, Wm. H.	Goldsboro
*Smithwick, Jas. E.	Jamesville
Smoot, J. E., (Hon.)	Concord
Sorrell, F. Y.	Wadesboro
*Sowers, Roy G.	Jonesboro
Spainhour, Ellis H., (Hon.)—	—Winston-Salem
Sparrow, Thos. DeL.	Charlotte
Speas, D. C.	Winston-Salem
*Speas, W. P., OALR	Winston-Salem

*Present at 1933 Meeting at Raleigh.

Name	*Address*
*Speed, J. A.	Durham
Speight, J. A.	Rocky Mount
Spencer, Frederick B.	Salisbury
Spencer, Wm. O., (Hon.)	Winston-Salem
*Spicer, Richard W.	Winston-Salem
*Spikes, N. O.	Durham
*Spoon, S. C.	Burlington
Sprinkle, C. N.	Weaverville
Spruill, Jos. L.	Jamestown
Sprunt, W. H., Jr.	Winston-Salem
Squires, Claude B.	Charlotte
*Staley, S. Walter	Rocky Mount
Stamps, Thos., (Hon.)	Lumber Bridge
Stancill, Wm. W.	Rockingham
Stanford, Lois Foote	Durham
Stanford, W. R.	Durham
Stanley, John H.	Four Oaks
*Stanton, D. A., (Hon.)	High Point
Staton, L. R.	Hendersonville
Steel, Wm. C.	Mount Olive
*Stevens, M. L., (Hon.)	Asheville
Stevens, W. L.	Shiloh
*Stewart, H. D., (Hon.)	Monroe
Stewart, J. T.	Summerfield
Stimpson, R. T.	Raleigh
Stokes, Jas. E., (Hon.)	Salisbury
Stone, M. L.	Rocky Mount
*Street, C. A.	Winston-Salem
*Street, M. E., (Hon.)	Glendon
*Stretcher, R. H.	Waynesville
Strickland, E. F., (Hon.)	Winston-Salem
*Strickland, E. L.	Wilson
Stringfield, Samuel L.	Waynesville
Stringfield, Thos., (Hon.)	Waynesville
Strong, Chas. M., (Hon.)	Charlotte
*Strosnider, Chas. F.	Goldsboro
Strowd,, W. A.	Durham
*Suiter, W. G.	Weldon
Summerell, E. M., (Hon.)	China Grove
*Sumner, E. A.	High Point
*Sumner, G. H.	Asheboro
*Sumner, Howard L.	Asheville
*Sutton, Carl W.	Richlands
*Sutton, Wm. C.	Seven Springs
*Swann, C. C.	Asheville
Swann, Jos. F. (Hon.)	Gastonia
Sweaney, H. M.	Durham
Swindell, Lewis H.	Washington
*Sykes, R. P.	Asheboro
*Symington, John	Carthage
Talley, J. A.	Troutman
*Tankersley, J. W.	Greensboro
*Tate, C. S.	Ramseur
Tate, W. C.	Banner Elk
*Tatum, Roy C.	Statesville
*Tayloe, D. T., Jr.	Washington
*Tayloe, John Cotton	Washington
*Tayloe, Joshua, Jr.	Washington
Taylor, E. H. E.	Morganton
*Taylor, F. R.	High Point
Taylor, G. W.	Mooresville
Taylor, H. C.	Charlotte (Chadwick Station)
*Taylor, J. E.	Morganton
Taylor, James N.	Greensboro
*Taylor, R. W.	Oxford
Taylor, S. R., OALR	Greensboro
Taylor, T. G.	Leaksville
Taylor, Wesley	Greensboro
Taylor, W. I.	Burgaw
Taylor, Wm. L., (Hon.)	Oxford
Teague, S. E.	Hamlet
Templeton, J. Y.	Mooresville
Tennent, G. S., (Hon.), OALR—	—Asheville
Terry, Geo. H. B.	Oteen
*Terry, J. R.	Lexington
Terry, Wm. Calvin	Hamlet
Thaxton, B. A.	Roxboro
Thigpen, H. G.	Scotland Neck
*Thomas, C. D.	Sanatorium
*Thomas, J. G.	Greensboro
*Thomas, W. Clyde	Siler City
*Thomas, W. N.	Oxford
Thompson, A. C.	Asheville
Thompson, A. F., OALR	Troy
*Thompson, C. D.	High Point
*Thompson, Edg. S.	Winston-Salem
*Thompson, H. C.	Shelby
*Thompson, Hugh A.	Raleigh
Thompson, Joseph W.	Creedmore
*Thompson, S. R.	Charlotte
Thompson, S. W., Jr.	Morehead City
*Thornton, W. F.	Sanatorium
Thurston, Asa	Taylorsville
Timberlake, C. V.	Youngsville
Todd, L. C.	Charlotte
Townsend, M. L.	Washington, D. C. (Mecklenburg Co.)
Triplett, W. R.	Purlear
*Trivette, W. A.	Houstonville
*Troxler, R. M.	Burlington
*Tucker, E. V.	Goldsboro
*Tucker, Jno. H.	Charlotte
Turlington, W. I., Jr.	Jacksonville
*Turner, H. G.	Raleigh
Turner, J. P.	Greensboro
*Turrentine, Kilby P.	Kinston

*Present at 1933 Meeting at Raleigh.

Name	*Address*
Tuttle, A. F.	Spray
*Tuttle, Reuben G.	Winston-Salem
Twitty, John C.	Rutherfordton
Tydeman, F. W. L.	San Francisco, Cal. (Mecklenburg Co.)
Tyler, E. R.	Durham
*Tyndall, R. G.	Kinston
*Tyner, Carl V.	Leaksville
*Underwood, O. E.	Roseboro
Utley, H. H.	Benson
*Valk, A. deT.	Winston-Salem
*Vann, H. M.	Wake Forest
*Van Pool, C. M., (Hon.)	Salisbury
Vaughn, J. C.	Rich Square
*Verdery, W. C.	Fayetteville
Verner, Carl Hugh	Forest City
Vernon, Jas. W.	Morganton
Vestal, T. F.	Winston-Salem
Vestal, Willis J., (Hon.)	Lexington
Vick, George D.	Selma
Wakefield, Harry A., OALR	Charlotte
*Walker, H. D., (Hon.)	Elizabeth City
*Walker, J. B.	Burlington
Walker, L. K.	Ahoskie
*Wall, R. L.	Winston-Salem
*Walters, Chas. M.	Burlington
Walton, C. L.	Glen Alpine
Wannamaker, Edw. J., Jr.	Charlotte
Ward, I. A., OALR	Elizabeth City
Ward, Jesse E.	Robersonville
*Ward, John LaB.	Asheville
*Ward, Vernon A.	Robersonville
*Ward, W. T.	Raleigh
Warren, R. F.	Prospect Hill
Watkins, F. B.	Morganton
*Watkins, G. T.	Durham
*Watkins, W. M.	Durham
Watson, John B.	Raleigh
Watson, Leon	Broadway
Watson, Paul S.	Madison
*Watson, Thos. M.	Greenville
*Weathers, Bahnson	Rosemary
*Weathers, R. R.	Knightdale
Weaver, Henry B., (Hon.)	Asheville
*Weaver, H. J.	Hamptonville
Weaver, W. J.	Rt. 4, Asheville
Weddington, J. L.	Hendersonville
Weizenblatt, Sprinza	Asheville
Wessell, John C., (Hon.)	Wilmington
West, B. C.	Kinston
West, C. F.	Kinston
*West, Louis N., OALR	Raleigh
West, Robert M.	Salisbury
Wharton, Chas. R.	Ruffin

*Present at 1933 Meeting at Raleigh.

Name	*Address*
Wheeler, J. H.	Henderson
Whelpley, Frank L.	Goldsboro
Whims, H. C.	Waxhaw
Whisnant, Albert M., (Hon.)	Charlotte
*Whitaker, Paul F.	Kinston
Whitaker, R. B.	Whiteville
White, R. A.	Asheville
*White, Thos. P.	Charlotte
White, W. H. C.	Elizabeth City
*Whitehead, S. L.	Asheville
Whitfield, Wm. Cob, (Hon.)	Salisbury
*Whittington, Claude	Greensboro
Whittington, Jas. B.	Winston-Salem
*Whittington, W. W., (Hon.)	Snow Hill
*Wilkerson, Charles B.	Raleigh
*Wilkerson, Charles E.	Greensboro
Wilkes, Grover C.	Sylva
*Wilkes, Marcus B.	Laurel Hill
*Wilkins, J. C.	Haw River
*Wilkins, J. W., OALR	Mt. Olive
*Wilkins, R. B., OALR	Raleigh
Wilkins, S. A., (Hon.)	Dallas
*Winkinson, C. T.	Wake Forest
*Wilkinson, R. W.	Wake Forest
Wilcox, J. W.	Schenectady, N. Y. (Scotland Co.)
*Williams, Claude B.	Elizabeth City
*Williams, J. H.	Sanatorium
Williams, John D., (Hon.)	—Guilford Station
Williams, L. L.	Asheville
*Williams, Lester L.	Fayetteville
*Williams, L. P.	Edenton
Williams, Wm. N.	Tabor
*Willis, A. P.	Candler
*Willis, B. C.	Rocky Mount
Willis, H. C.	Wilson
Wilson, Albert R., (Hon.)	Greensboro
Wilson, Clarence L.	Lenoir
Wilson, N. G.	Madison
*Wilson, R. B.	Asheville
Wilson, Robert B.	Clinton
*Wilson, S. Glenn	Clinton
*Wilson, W. G.	Smithfield
Wingate, G. C.	Charlotte
Winkler, Harry	Charlotte
*Winstead, J. L.	Greenville
*Winston, P. H.	Raleigh
Wiseman, P. H.	Avondale
Wishart, Wm. E.	Charlotte
Wolfe, H. C., OALR	Greensboro
*Wolff, D. R.	Greensboro
Wood, Frank	Marion

Name	*Address*
Wood, J. W., (Hon.)	Boiling Springs
Woodard, A. G.	Goldsboro
*Woodard, C. A.	Wilson
*Woodard, G. B.	Wilson
Woodcock, John H.	Hendersonville
Woodson, Charles W.	Salisbury
Woodward, J. G.	Asheville
Wooten, Floyd P.	Kinston
*Wooten, W. I.	Greenville
*Wright, J. B., (Hon.), OALR	Raleigh
*Wyatt, A. T.	Lillington
Wyatt, Wortham	Winston-Salem
*Wylie, W. deK.	Winston-Salem
*Yarborough, Frank R.	Cary
*Yarborough, R. F., (Hon.)	Louisburg
*Yoder, Paul A.	Winston-Salem
Yokeley, Raymon V.	Thomasville
York, Alexander Arthur	High Point
Young, G. McD.	Postell
*Yow, I. A.	Concord
*Ziegler, M. V.	Raleigh
Zimmerman, Robert U.	Welcome

*Present at 1933 Meeting at Raleigh.

ROSTER OF FELLOWS FOR 1933

BY COUNTIES

NOTE:—Every physician in the state whose name we could secure has had an opportunity to supply correct information as to his name, postoffice, academic and medical education, date of State license and date State Society was joined. A few did not take advantage of the opportunity. Anyone finding an error should report it to the Secretary of the society.

ALAMANCE-CASWELL COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President: R. F. Warren, Prospect Hill; Atlanta School of Med., 1911	1911	1919
Secretary: S. C. Spoon, Burlington; Univ. of Md., 1918	1918	1920
Anderson, Chas. A., Burlington, (Hon.); Coll. P. and S., Balt., 1901	1893	1896
Bell, F. O., Burlington; Atlanta Med. Coll., 1918	1921	1928
Braddy, Wade Hampton, Burlington; Univ. of N. C., 1909	1909	1913
Brooks, R. E., Burlington; Jeff. Med. Coll., 1920	1920	1922
Carlyle, J. B., Burlington; Jeff. Med. Coll., 1926	1926	1928
Carrington, G. L., Burlington; Johns Hopkins, 1920	1920	1925
Ellington, A. J., Burlington; Columbia Univ., 1915	1915	1917
Goley, Willard Coe, Graham; Univ. of Pa., 1024	1924	1924
Goley, Wm. R., Graham, (Hon.); P. and S., Balt., 1885	1885	1893
Gwyn, H. L., Yanceyville; Med. Coll. Va., 1923	1923	1925
Harden, Graham, Burlington; Univ. of Pa., 1919	1920	1922
Johnson, Jos. L., Graham; Jeff. Med. Coll., 1926	1926	1930
McDade, B. B., Burlington; Univ. of Md., 1918	1918	1920
McPherson, C. W., Burlington; Univ. of Md., 1910	1910	1912
McPherson, R. G., Saxapahaw; Univ. of N. C., 1908	1908	1909
Malloy, S. A., Yanceyville, (Hon.); Ky. School Med., 1897	1898	1903
Montgomery, Harry M., Burlington; N. C. Med. Coll., 1903	1903	1904
Moore, Henry Blanchard, Graham; Jeff. Med. Coll., 1920	1920	1923
Pickett, J. A., Burlington, R.F.D., 1; Univ. of Tenn. Coll. of Med., 1894	1894	1904
Robinson, D. E., Burlington; Harvard Med. Coll., 1927	1929	1930
Scott, S. F., Union Ridge; Univ. of Pa., 1918	1918	1920
Simpson, H. H., Altamahaw; Univ. of Md., 1925	1925	1926
Smith, F. L., Burlington; Univ. of Pittsburg, 1927	1927	1928
Troxler, R. M., Burlington; Univ. of Md., 1914	1914	1915
Walker, J. B., Burlington; Med. Coll. Va., 1914	1914	1916
Walters, C. M., Burlington; Univ. of Md. and P. and S., Balt., 1908	1908	1909
Wilkins, J. C., Haw River; Univ. of Md., 1911	1911	1920

ANSON COUNTY

President:	.....	.....
Secretary:	.....	.....
Allen, Chas. I., Wadesboro; Columbia Univ. Coll. P. and S., 1913	1913	1922
Bennett, Jos. H., Wadesboro; Univ. of Md., 1894	1894	1904
McGoogan, Benj. J., Morven; Univ. of Md., 1912	1912	1923
Sorrell, F. Y., Wadesoro; Jeff. Med. Coll., 1930	1930	1933

BEAUFORT COUNTY SOCIETY

President: D. T. Tayloe, Jr., Washington; Univ. of Pa., 1919	1919	1922
Secretary: D. E. Ford, Washington; Univ. of Mich., 1908	1925	1924

Name and Address	Licensed	Joined State Society
Bonner, J. B., Aurora; Univ. of Md. School of Med. and Coll. P. and S., 1918	1918	1920
Carter, H. W., Washington; Univ. of Va., 1895	1895	1910
Jackson, C. C., Pinetown; P. and S., Balt., 1893	1893	1896
Kluttz, DeWitt, Washington; Univ. of Pa., 1918	1919	1921
Mariner, N. B., Belhaven; Univ. Coll. of Med. Va., 1903	1903	1903
Nicholson, P. A., Washington; (Hon.); P. and S., Balt., 1889	1889	1890
Rodman, J. C., Washington, (Hon.); Bellevue Med. Coll., 1892	1892	1895
Swindell, Lewis H., Washington; Univ. of Pa., 1916	1916	1919
Tayloe, John Cotton, Washington; Univ. of Pa., 1922	1924	1925
Tayloe, Joshua, Jr., Washington; Univ. of Pa., 1923	1923	1926

BERTIE COUNTY SOCIETY

President: Frank H. Garris, Lewiston; Jeff. Med. Coll., 1912	1912	1918
Secretary: S. A. Saunders, Aulander; Jeff. Med. Coll., 1914	1914	1918
Castelloe, Cola, Windsor; Univ. of Pa., 1917	1917	1926
Evans, L. B., Windsor; Univ. Coll. of Med., 1900	1900	1907
Lyon, Henry Wise, Windsor; Univ. of Pa. Sch. of Med., 1918	1919	1920
Norfleet, E. P., Roxobel; Va. Med. Coll., 1914	1914	1920
Sawyer, Charles Judson, Windsor, (Hon.); P. and S., Balt., 1895	1895	1897
Smith, Jos. Elmer, Windsor; Med. Coll. of Va., 1921	1921	1922

BLADEN COUNTY SOCIETY

President:	.....	.....
Secretary: E. S. Clark, Clarkton; Med. Coll. of Va., 1914	1914	1915
Bennett, E. C., Elizabethtown; Med. Coll. of Va., 1926	1926	1927
Cromartie, R. S., Elizabethtown; N. C. Med. Coll., 1900	1900	1915
Hutchinson, S. S., Bladenboro; N. C. Med. Coll., 1911	1911	1917
Singletary, G. C., Clarkton; Univ. of Pa. School of Med., 1917	1917	1918

BRUNSWICK COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Goley, Wm. R., Shallotte; Univ. Coll. of Med., Richmond, 1901	1901	1904
Smith, F. G., Southport; Univ. of Ga., 1922	1927	1931

BUNCOMBE COUNTY SOCIETY

President: L. G. Beall, Black Mountain; N. C. Med. Coll., 1906; Univ. of Pa., 1911	1906	1912
Secretary: M. S. Broun, Asheville; Columbia University Coll. of P. S., 1919	1922	1923
Adams, J. L., Asheville; Jeff. Med. Coll., 1910	1910	1913
Archer, Isaac J., Black Mountain; Northwestern Univ. Med. School, 1896	1905	1907
Baker, W. E., Arden; Chattanooga Med. Coll., 1908	1915	1916
Battle, Geo. C., Asheville; Univ. of Md., 1912	1912	1912
Blumberg, Alfred, Oteen; Sch. Med. Univ. of Colo., 1923	1928	1929
Brookshire, Harley G., Asheville; N. C. Med. Coll., 1905	1905	1907
Brownsberger, John F., Asheville; Coll. of Med.. Evan. Los Angeles, 1925	1928	1929
Buck, David M., Asheville; Med. Col. of Va., 1925	1925	1927
Buckner, J. M., Swannanoa; Univ. N. C., 1909	1909	1912

Name and Address	Licensed	Joined State Society
Cheesborough, Thomas P., Biltmore, (Hon.); Univ. of N. Y., 1891	1891	1900
Clark, Harold S., Asheville; Univ. of Pa., 1922	1922	1924
Cocke, C. H., Asheville; Cornell Univ., 1905	1912	1913
Cocke, E. R., Asheville; Jeff. Med. Coll., 1913	1914	1917
Cocke, Jere E., Asheville; Louisville Med. Coll., 1905	1905	1907
Colby, C. deW., Asheville; Univ. of Mich., 1892; Army Med. School, 1895	1909	1912
Cotten, Clyde E., Asheville, (Hon.); Univ. of Wooster, 1889	1901	1901
Eckel, O. F., Asheville; Med. Coll. of S. C., 1906	1907	1909
Edwards, B. O., Asheville; N. C. Medical Coll., 1905	1905	1909
Elias, Lewis W., Asheville; Columbia Univ. Coll. of P. and S., 1903	1906	1907
Floyd, H. T., Oteen; Johns Hopkins Univ., 1923	1926	1927
Fox, Robert Eugene, Asheville; Univ. of Pa., 1926	1926	1929
Freeman, Wm. T., Biltmore; Univ. of Ga., 1917	1927	1929
George, John C., Oteen; Miami Med., 1906	1925	1927
Godwin, G. C., Oteen; Med. Coll. Va., 1915	1915	1920
Greene, Jos. B., Asheville; Univ. of Va., 1893	1910	1911
Greenwood, A. B., Asheville; Johns Hopkins, 1916	1916	1918
Griffin, M. A., Asheville; Jeff. Med. Coll., 1917	1917	1918
Griffin, W. R., Asheville; Jeff. Med. Coll., 1910	1910	1917
Griffith, F. W., Asheville; Johns Hopkins, 1906	1911	1912
Griffiith, L. M., Asheville; Johns Hopkins, 1915	1916	1917
Harrison, H. H., Asheville; Jeff. Med. Col., 1905	1905	1918
Hensley, Chas. A., Asheville; Jeff. Med. Coll., 1917	1917	1927
Herbert, Wm. P., Asheville; Univ. of Va., 1907	1910	1911
Hipps, A. G. T., Asheville; Jeff. Med. Coll., 1916	1916	1920
Hollyday, W. M., Asheville; Univ. of Maryland, 1908	1914	1915
Ingersoll, Louise M., Asheville; Woman's Med. Coll., 1914	1925	1927
Ivey, R. R., U. S. P. H. S., Biltmore; Univ. of Ala., 1909	1921	1921
Jones, Catesby, Asheville; Univ. of Md., 1893	1931	1932
Jordan, Charles S., Asheville, (Hon.), Univ. o.f N. Y., 1890	1891	1899
King, Edward, Asheville; Harvard, 1917	1921	1922
Lord, Marjery J., Montreat; Univ. of Mich., 1916	1918	1918
MacRae, J. D., Jr., Asheville; Univ. of Pa. Med. School, 1927	1927	1930
McCall, A. C., Asheville; Univ. of Md., 1910	1910	1912
McCracken, C. M., Fairview; N. C. Med. Coll., 1896	1896	1904
Mears, George A., Asheville; Med. Coll. Syracuse Univ., 1924	1924	1927
Montgomery, Kenneth E., Asheville; Univ. Louisville, 1917	1920	1920
Moore, Julian A., Asheville; Univ. of Pa., 1918	1918	1921
Morgan, B. E., Asheville; Univ. of Tenn., 1917	1921	1921
Morgan, G. A., Asheville; Univ. of Tenn., 1917	1920	1925
Murphy, Gibbons W., Asheville; Emory Univ., 1923	1923	1927
Norburn, Chas. S., Asheville; Univ. of Va., 1917	1921	1924
Norburn, R. L., Asheville; Vanderbilt Univ., 1925	1925	1927
Orr, Chas. C., Asheville; Univ. of Md., 1904	1904	1905
Pendleton, Wilson, Asheville; Univ. of Va., 1908	1919	1920
Pritchard, G. L., Black Mountain; Univ. Coll. of Med., Richmond, 1913	1913	1926
Reeves, R. J., Leicester; Vanderbilt Univ., 1913	1913	1922
Reynolds, C. V., Asheville, (Hon.); Univ. of N. Y., 1895	1895	1896
Ringer, Paul H., Asheville; Columbia Univ. P. and S., N. Y., 1904	1906	1907
Russell, W. M., Asheville; Univ. of Cincinnati, 1928	1931	1932
Schaffle, Karl, Asheville; Univ. of Pa., 1907	1926	1927
Schoenheit, E. W., Asheville; Jeff. Med. Coll., 1920	1920	1921

Name and Address	Licensed	Joined State Society
Sevier, D. E., Asheville, (Hon.); Jeff. Med. Coll., 1895	1895	1899
Sevier, J. T., Asheville, (Hon.); Jeff. Med. Coll., 1895	1895	1899
Smith, B. R., Asheville; Jeff. Med. Coll., 1911	1913	1914
Sprinkle, C. N., Weaverville; Jeff. Med. Coll., 1910	1910	1922
Stevens, M. L., Asheville, (Hon.); Balt. Med. Coll., 1891	1892	1893
Sumner, Howard L., Asheville; Jeff. Med. Coll	1926	1929
Swann, C. C., Asheville; Tulane Univ., 1926	1930	1931
Tennett, G. S., Asheville, (Hon.); N. C. Med. Coll., 1894	1894	1898
Terry, George H. B., Oteen; Jeff. Med. Coll., 1895	1925	1927
Thompson, A. C., Asheville; Georgetown Univ., 1911	1921	1922
Ward, John LaB., Asheville; Med. Coll. of S. C., 1905	1921	1922
Weaver, H. B., Asheville, (Hon.); Washington Univ., 1872	1881	1882
Weaver, W. J., Asheville; Jeff. Med. Coll., 1898	1897	1915
Weizenblatt, Sprinza, Asheville; Vienniese Univ. of Med., 1922	1929	1931
White, R. A., Asheville; Univ. Cin. Coll. of Med., 1918	1920	1921
Whitehead, S. L., Asheville; Jefferson Med. Coll., 1921	1921	1929
Williams, L. L., Asheville; Med. Coll. of S. C., 1880	1924	1927
Willis, A. P., Candler; Univ. of N. C., 1904	1904	1919
Wilson, R. B., Asheville; Univ. of Louisville, 1931	1931	1933
Woodward, J. G., Asheville; Univ. of Pa., 1925	1925	1927

BURKE COUNTY SOCIETY

President: G. M. Billings, Morganton; Tulane Univ. of La., 1919	1919	1920
Secretary: J. E. Taylor, Morganton; Med. Coll. Va., 1922	1929	1930
Achard, Lucien, Morganton; R. Univ. of Naples, (Italy)	1896	1929
Helms, J. B., Morganton; Univ. of Pa., 1928	1928	1931
Kende, Tibor N., Jersey City, N. J.; Royal Hungarian Univ., Budapest, Hungary, 1922	1927	1928
Kibler, W. H., Morganton; Univ. of Pa., 1914	1914	1918
Kirksey, Jas. J., Morganton; Univ. of Pa., 1921	1921	1923
Long, Benj. L., Glen Alpine; N. C. Med. Coll., 1913	1913	1914
Long, R. H., Morganton; Jeff. Med. Coll., 1916	1916	1923
McCampbell, John, Morganton, (Hon.); Balt. Med. Coll., 1894	1895	1899
McLean, Allan, Morganton; Univ. of Md., 1908	1908	1911
Phifer, Edward W., Morganton; N. C. Med. Coll., 1902	1902	1904
Riddle, J. B., Morganton; Vanderbilt Univ., 1898	1904	1904
Saunders, John Rudolph, Morganton; Emory Univ., 1926	1926	1931
Taylor, E. H. E., Morganton; Tulane Univ., La., 1924	1924	1925
Vernon, Jas. W., Morganton; Jeff. Med. Coll., 1909	1909	1913
Walton, C. L., Glen Alpine	.....	1933
Watkins, F. B., Morganton; Jeff. Med. Coll., 1907	1907	1910

CABARRUS COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Bunn, J. J., Mt. Pleasant; N. C. Med. Coll., 1912	1913	1915
Gouger, Geo. J., Concord, (Hon.); Univ. of Md., 1891	1891	1899
Ketner, Fred Y., Concord; Med. Coll. of Va., 1928	1929	1930
King, Richard M., Concord; Jeff. Med. Coll., 1903	1903	1907
Lubchenko, N. E., Harrisburg; N. C. Med. Coll., 1915	1915	1916
MacFayden, Paul R., Concord; Univ. Coll. of Med., Richmond, 1901	1901	1904
MacFayden, Paul R., Jr., Concord; Univ. of Va., 1929	1929	1932
Robinson, E. E., Concord; Med. Coll. of Va., 1927	1927	1929
Smoot, J. E., Concord, (Hon.); Balt. Med. Coll., 1893	1894	1902
Yow, I. A., Concord; N. C. Med. Coll., 1906	1906	1910

CALDWELL COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: Douglas Hamer, Jr., Lenoir; Med. Coll. of S. C.	1927	1929
Secretary: Verne H. Blackwelder, Lenoir	.....	1931
Hedrick, Clyde R., Lenoir; Georgetown Med. Sch., 1925	1925	1926
Houck, Albert, Lenoir, (Hon.); P. and S., Balt., 1884	1891	1893
Kent, Alfred A., Winter Pk., Fla., (Hon.); Jeff. Med. Coll., 1885	1885	1894
McNairy, Caroline, Lenoir; Woman's Med. Coll. Pa., 1917	1917	1919
Petrie, Robt. Wm., Lenoir, (Hon.); Univ. of Md., 1903	1903	1903
Rudisill, J. D., Lenoir; Univ. of Md., 1922	1922	1923
Wilson, Clarence L., Lenoir; U. S. Grant Univ., 1903	1903	1905

CARTERET COUNTY SOCIETY

President:	.....	.....
Secretary: C. S. Maxwell, Beaufort; Univ. of the South, Sewanee, 1900	1899	1904
Bonner, K. P. B., Morehead City; Med. Coll. of Va., 1905	1905	1905
Chadwick, W. S., Beaufort; Univ. of Va., 1928	1928	1930
Davis, George, Beaufort; Kentucky School of Med., 1894	1896	1904
Ferebee, C. G., Morehead City; Med. Coll. of Va., 1902	1904	1904
Hyde, Francis Edward, Beaufort; West. Res. Univ., 1920	1925	1926
Johnson, Otis H., Morehead City; Atlanta Med., 1905	1926	1926
Lewis, C. W., Beaufort; Med. Coll. of Va., 1930	1930	1931
Mason, C. N., Newport; Coll. P. and S., Balt., 1882	1889	1930
Moore, L. W.	.....	1933
Royal, Ben F., Morehead City; Jeff. Med. Coll., 1909	1909	1909
Thompson, S. W., Jr., Morehead City; Med. Coll. Va., 1913	1915	1922

CASWELL COUNTY SOCIETY—(See Alamance-Caswell)

CATAWBA COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Cloninger, K. L., Conover; Univ. of Md., 1931	1931	1932
Fresh, W. M., Hickory	.....	1927
Frye, Glenn R., Hickory; Jeff. Med. Coll., 1921	1921	1923
Lewis, J. S., Hickory; Med. Coll. of S. C., 1925	1927	1932
Long, Glenn, Newton; N. C. Med. Coll., 1912	1912	1915
Menzies, H. C., Hickory, (Hon.); N. C. Med. Coll., 1894	1894	1899
Norman, J. S., Hickory; P. and S., Balt., 1909	1911	1920
Price, K. A., Hickory; Univ. of Va., 1907	1907	1909

CHATHAM COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Edwards, J. D., Siler City, (Hon.); Louisville Med. Coll., 1887	.....	1894
Thomas, W. Clyde, Siler City; Med. Coll. of Va., 1917	1917	1920

CHEROKEE COUNTY SOCIETY

President: N. B. Adams, Murphy; Tenn. Med. Coll., 1896	1909	1909
Secretary: Edw. E. Adams, Murphy; Jeff. Med. Coll., 1923	1923	1924
Herbert, Fred L., Andrews; Tenn. Med. Coll., 1904	1912	1912
Hill, J. N., Murphy; Univ. of Louisville, 1909	1909	1909
Young, G. McD., Postell; Lincoln Mem. Univ., 1916	1917	1918

CHOWAN-PERQUIMANS COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President:	.....	.....
Secretary:	.....	.....
Brinn, T. P., Hertford; Univ. of Pa., 1923	1923	1927
Cox, Thomas A., Hertford; Univ. of Md., 1892	1907	1918
Davenport, C. A., Hertford; Univ. of Med., 1924	1924	1926
Newby, G. E., Hertford; Jeff. Med. Coll., 1900	1901	1916
Powell, Jesse A., Edenton; Coll. of P. and S., Balt., 1907	1908	1909
Williams, L. P., Edenton; Bellevue Med. Coll., 1918	1919	1921

CLEVELAND COUNTY SOCIETY

President: W. J. Lackey, Fallston; Va. Med. Coll., 1928	1928	1929
Secretary B. B. Matthews, Shelby; Med. Coll. of S. C.	1927	1929
Aydlette, Jos. P., Earl, (Hon.); Ky. Univ., 1901	1903	1903
Bridges, D. T., Lattimore; Emory Univ., 1926	1926	1927
Ellis, R. C., Shelby, (Hon.); Balt. Univ. Med. School, 1886	1889*	1891
Falls, Fred, Lawndale; Tulane, 1930	1930	1933
Gold, Ben, Shelby; P. and S., Balt., 1920	1920	1922
Gold, T. B., Shelby; N. C. Med. Coll., 1911	1911	1915
Harbison, J. W., Shelby; Johns Hopkins, 1919	1919	1924
Houser, E. A., Shelby; Chattanooga Med. Coll., 1898; Balt. Univ., 1902	1902	1904
Kendall, B. H., Shelby; Univ. of Md., 1929	1929	1931
Lattimore, E. B., Shelby; Bellevue Med. Coll., 1897	1896	1904
Lee, Lawrence V., Lattimore; Emory Univ. School of Med., 1894	1897	1904
Mitchell, T. B., Shelby; Univ. of Pa., 1924	1925	1927
Moore, D. F., Shelby; Jeff. Med. Coll., 1925	1925	1927
Oates, George, Grover; Univ. of Louisville, 1894	1902	1904
Parker, S. F., Shelby; Med. Coll. of Va., 1929	1929	1931
Ramseur, W. L., Kings Mountain; Med. Coll. of S. C., 1926	1927	1929
Royster, S. S., Shelby; Tenn. Med. Coll.,, 1891	1896	1904
Schenk, Sam M., Shelby; Univ. of Pa., 1923	1923	1926
Thompson, H. C., Shelby; Tulane Univ., 1930	1931	1932
Wood, J. W., Boiling Springs, (Hon.); Louisville Med. Coll., 1892	1901*	1900

COLUMBUS COUNTY SOCIETY

President:	.....	.....
Secretary: Floyd Johnson, Whiteville; Memphis Hosp. Med. Coll., 1903	1903	1904
Cox, G. S., Tabor; N. C. Med. Coll., 1911	1911	1914
Floyd, L. D., Fair Bluff; N. C. Med. Coll., 1911	1911	1912
Moore, T. V., Delco; Balt. Med. Coll., 1901	1901	1911
Sadler, R. C., Whiteville; N. C. Med. Coll., 1912	1912	1915
Smith, W. F., Chadbourn; N. C. Med. Coll., 1904	1904	1905
Whitaker, R. B., Whiteville; Univ. Coll. of Med., Richmond, 1912	1912	1913
Williams, William N., Tabor; Med. Coll. of Va., 1924	1924	1925

CRAVEN COUNTY SOCIETY

President: Chas. Hall Ashford, New Bern; Johns Hopkins, 1927	.....	1931
Secretary:	.....	.....
Bender, E. L., New Bern; Med. Coll. of Va., 1916	1916	1925
Daniels, R. L., New Bern; Med. Coll. of Va., 1912	1912	1919

*Registered.

Name and Address	Licensed	Joined State Society
Duffy, R. N., New Bern; Johns Hopkins, 1906	1907	1908
Duguid, Jos. W., Dover; N. C. Med. Coll., 1905	1905	1912
Gibbs, N. M., New Bern; Univ. of Md. and Coll. P. and S., Balt., 1896	1895	1897
Jones, R. Duval, New Bern; Univ. of Md., 1896	1897	1897
Latham, Joseph R., New Bern; Jeff. Med. Coll., 1917	1917	1923
Pollock, Raymond, New Bern; Jefferson Med. Coll., 1897	1900	1900

CUMBERLAND COUNTY SOCIETY

President: J. A. Shaw, Fayetteville; Univ. Pa., 1923	1923	1926
Secretary: J. N. Robertson, Fayetteville; Med. Col. of Va., 1923	1923	1924
Allgood, R. A., Fayetteville; Univ. of Md. and Coll. of P. and S., Balt., 1912	1915	1917
Ashcraft, J. E., Fayetteville, (Hon.); Univ. of N. Y., 1887	1887	1890
Averitt, K. G., Cedar Creek, (Hon.); Balt. Med. Coll., 1893	1893	1902
Bullock, Thomas C., Autryville, (Hon.);P. and S., Balt., 1885	1885	1905
Currie, D. S., Parkton; N. C. Med. Coll., 1906	1906	1907
Gainey, John W., Fayetteville; Jeff. Med. Coll., 1917	1917	1921
Highsmith, J. D., Fayetteville; Jeff. Med. Coll., 1918	1918	1920
Highsmith, J. F., Fayetteville, (Hon.); Jeff. Med. Coll., 1889	1889	1893
Highsmith, J. F., Jr., Fayetteville; Univ. of Pa., 1927	1927	1929
Highsmith, Seavy, Fayetteville, (Hon.); Univ. Coll. of Med., Richmond, 1901	1901	1902
Highsmith, W. C., Fayetteville; Univ. of Cincinnati, 1931	1930	1932
Jordan, Wm. S., Fayetteville; Univ. of N. C., 1906	1906	1907
Kirksey, W. A., Hope Mills; Washington Univ., 1921	1921	1924
Lilly, James M., Fayetteville; Univ. Coll. of Med., Richmond, 1903	1903	1904
MacKethan, D. G., Fayetteville; Univ. Coll. of Med., Richmond, 1899	1899	1899
McFadyen, O. L., Fayetteville; N. C. Med. Coll., 1912	1912	1912
McKay, W. P., Fayetteville; Tulane Univ., 1916	1916	1921
McLeod, J. H., Fayetteville	.....	.....
Olive, P. W., Fayetteville; P. and S., Balt., 1907	1907	1909
Owen, D. S., Fayetteville; Univ. of Md., 1930	1930	1933
Parker, W. T., Fayetteville; Med. Coll. of S. C., 1928	1931	1933
Pittman, R. L., Fayetteville; Jeff. Med. Coll., 1910	1910	1912
Rainey, W. T., Fayetteville; Univ. Coll. of Med., Richmond, 1913	1913	1916
Verdery, W. C., Fayetteville; Univ. of Ga., 1915	1920	1921
Williams, Lester L., Fayetteville; Md. Med. Coll., 1913	1913	1916

DAVIDSON COUNTY SOCIETY

President: R. K. Farrington, Thomasville; Univ. Cin., 1925	1925	1927
Secretary: C. R. Sharpe, Lexington; Jeff. Med. Coll., 1914	1914	1917
Cathell, E. J., Lexington; Emory Univ., 1930	1930	1932
Clyatt, Claude Eugene, Denton; Univ. of Ga., 1911	1923	1924
Gambrell, Grover C., Lexington; Univ. of Ga., 1912	1923	1924
Hunt, W. Bryce, Lexington; Univ. of Md., 1923	1923	1924
Jennings, R. G., Thomasville; N. C. Med. Coll., 1913	1913	1920
Lancaster, F. J., Lexington; Jeff. Med. Coll., 1922	1922	1924
Leonard, J. C., Jr., Lexington; Jeff., 1928	1928	1931
Mock, Frank Lowe, Lexington, Rt. 3; N. C. Med. Coll., 1908	1908	1911
Phillips, C. H., Thomasville; Balt. Univ. School of Med., 1892	1893	1911
Smith, J. A., Lexington; N. C. Med. Coll., 1915	1915	1917
Smith, William Gordon, Thomasville; Tulane Univ., 1927	1927	1928

Name and Address	Licensed	Joined State Society
Terry, J. R., Lexington; Univ. of Louisville, 1911	1912	1912
Vestal, Willis J., Lexington, (Hon.); P. and S., Balt., 1883	1889*	1893
Yokeley, R. V., Thomasville; N. C. Med. Coll., 1911	1911	1912
Zimmerman, Robert U., Welcome; N. C. Med. Coll., 1901	1901	1904

DAVIE COUNTY SOCIETY

President: W. C. Martin, Mocksville; P. and S., Balt., 1888	1888	1904
Secretary: A. B. Byerly, Cooleemee; Univ. College of Med., Richmond, 1896	1896	1904
Harding, S. A., Mocksville; N. C. Med. Coll., 1910	1910	1913
Rodwell, Jno. W., Mocksville, (Hon.); P. and S., Balt., 1895	1895	1896

DUPLIN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Morton, J. X., Faison; N. C. Med. Coll., 1915	1915	1922
Quinn, Robert F., Magnolia; N. C. Med. Coll., 1912	1913	1916

DURHAM-ORANGE COUNTIES SOCIETY

President: Robert A. Ross, Durham; Univ. of Pa., 1922	1922	1925
Secretary: W. B. Anderson, Durham; Johns Hopkins, 1924	1927	1927
Abernethy, Wm. Borden, Chapel Hill; Univ. of Pa., 1929	1929	1930
Adams, C. A., Durham, (Hon.); P. and S., Balt., 1892	1892	1901
Adkins, M. T., Durham; Johns Hopkins, 1907	1915	1916
Alyea, Edwin P., Durham; Johns Hopkins Med. Sch., 1923	1930	1930
Amoss, Harold L., Durham; Harvard Med. Sch., 1911	1929	1930
Bitting, Numa D., Durham; Jeff. Med. Coll., 1907	1907	1909
Booker, Lyle S., Durham; Va. Univ. Med. Coll., 1908	1910	1911
Boone, W. H., Durham; N. C. Med. Coll., 1902	1902	1910
Boone, W. W., Durham; Jeff. Med. Coll., 1923	1923	1925
Bowles, Francis N., Durham; Med. Coll., of Va., 1924	1924	1926
Brinkley, H. M., Durham; Jeff. Med. Coll., 1919	1919	1923
Brooks, B. U., Durham; Univ. of Md., 1905	1905	1907
Bullitt, J. B., Chapel Hill; Univ. of Va., 1897	1914	1915
Byrnes, Thomas H., Durham; Med. Coll. of S. C., 1926	1932	1932
Campbell, A. S., Durham; Chicago Coll. Med. and Surg., 1917	1923	1924
Carter, Bayard, Durham; Johns Hopkins, 1925	1925	1931
Coppridge, W. M., Durham; Jeff. Med. Coll., 1918	1919	1920
Davison, Wilburt C., Durham; Johns Hopkins, 1917	1927	1927
Darden, O. B., Richmond, Va., Med. Coll. of Va., 1918	1920	1920
Eagle, Watt W., Durham; Johns Hopkins, 1925	1929	1930
Fassett, Burton W., Durham; Balt. Med. Coll., 1898	1899	1909
Felts, Robert L., Durham; Univ. of Md., 1898	1899	1909
Fields, Leonard E., Chapel Hill; Univ. of Pa., 1929	1929	1931
Forrest, D. E., Hillsboro; Univ. of Md., 1930	1930	1933
Gardner, Clarence E., Jr., Durham; Johns Hopkins, 1928	1932	1932
Gorham, H. J., Durham; Univ. of Md., 1926	1926	1927
Goudge, Mabel E., West Durham; Ohio State Univ., 1922	1925	1927
Hamblen, E. C., Durham; Univ. of Va., 1928	1931	1931
Hansen-Pruss, O. C. E., Durham; Johns Hopkins, 1924	1930	1931
Hardee, W. P., Durham; Jeff. Med. Coll., 1912	1912	1924
Hart, Deryl, Durham; Johns Hopkins, 1921	1929	1930
Hayes, R. B., Hillsboro; Univ. of Md., 1906	1910	1917

*Registered.

Name and Address	Licensed	Joined State Society
Haywood, C. L., Jr., Durham; Harvard, 1927	1929	1930
Hicks, Calvin S., Durham; Univ. of Md., 1904	1904	1904
Holloway, Joseph C., Durham; Tulane Univ., 1927	1927	1929
Holloway, Robert Lee, W. Durham, (Hon.); Med. Coll. of Va., 1893	1893	1901
Johnson, N. M., Durham, (Hon.); Wash. Univ. Sch. of Med., 1877	1889	1879
Johnston, Christopher, Durham; Johns Hopkins, 1926	1930	1930
Kerns, T. C., Durham; Univ. of Pa., 1911	1911	1912
Lloyd, B. B., Carrboro; Univ. of N. C., 1909	1909	1914
London, A. H., Durham; Univ. of Pa., 1927	1927	1930
MacNider, Wm. deB., Chapel Hill; Univ. of N. C., 1903	1903	1903
McBryde, Angus M., Durham; Univ. of Pa., 1928	1931	1932
McCutcheon, W. B., Durham; Med. Coll. of Va., 1921	1921	1924
McPherson, S. D., Durham; Univ. of Md., 1903	1903	1912
Mangum, C. S., Chapel Hill; Jeff. Med. Coll., 1894	1896	1898
Manning, I. H., Chapel Hill, (Hon.); Long Island Coll., Hosp., N. Y., 1897	1899	1901
Manning, Jno. M., Chapel Hill, (Hon.); Bellevue Med. Coll., 1882	1884	1884
Markham, Blackwell, Durham; Harvard Med. Coll., 1922	1922	1925
Nichols, R. E., Jr., Durham; Univ. of Pa., 1930	1930	1932
Nichols, Rhodes E., Durham, (Hon.); Rt. 8; Va. Med. Coll., Richmond, 1890	1890	1904
Perry, D. R., Durham; Jeff. Med. Coll., 1919	1919	1922
Persons, Elbert Lapsley, Durham; Harvard Med. Sch., 1927	1931	1931
Powell, Albert H., Durham; Univ. of Ga., 1924	1925	1925
Reeves, Robert J., Durham; Baylor Univ., 1924	1930	1930
Riggsbee, A. E., Durham; Univ. of N. C., 1909	1909	1911
Roberson, Foy, Durham; Jeff. Med. Coll., 1909	1909	1912
Roberts, Bryan N., Hillsboro; Univ. of Md., 1925	1925	1926
Roberts, B. W., Durham; Univ. of Md., 1924	1924	1927
Robertson, E. M., Durham; Tulane Univ., 1912	1912	1913
Ross, George H., Durham; Univ. Tenn., 1899	1899	1904
Ruffin, J. M., Durham; Univ. Va., 1926	1930	1931
Schular, J. E., East Durham; Med. Coll. of Va., 1914	1920	1922
Shands, Alfred Rives, Jr., Durham; Univ. of Va., 1922	1929	1930
Smith, Annie T., Durham; Univ. of Ill., 1923	1925	1926
Smith, D. T., Durham; Johns Hopkins, 1922	.....	1931
Speed, J. A., Durham; Jeff. Med. Coll., 1914	1914	1916
Spikes, N. O., Durham; Jeff. Med. Coll., 1924	1924	1927
Stanford, Lois Foote, Durham; Univ. of Pa., 1921	1923	1924
Stanford, W. R., Durham; Univ. of Pa., 1919	1919	1923
Strowd, W. A., Durham; Univ. of N. C., 1909	1909	1926
Sweaney, H. M., Durham; Univ. of Pa., 1919	1919	1920
Tyler, E. R., Durham; Jeff. Med. Coll., 1923	1923	1927
Watkins, G. T., Durham; Jeff. Med. Coll., 1915	1915	1917
Watkins, W. M., Durham; Jeff. Med. Coll., 1923	1923	1925

EDGECOMBE-NASH COUNTIES SOCIETY

President: A. C. Norfleet, Tarboro; Univ. of Pa., 1924	1925	1927
Secretary:	.....	.....
Anderson, R. S., Rocky Mount; Univ. of Md., 1924	1924	1932
Baker, Julian Meredith, Tarboro, (Hon.); Univ. of Md., 1879	1879	1879
Bass, Spencer P., Tarboro; Univ. of Va., 1906	1907	1909
Battle, N. P., Rocky Mount; Univ. of Pa., 1926	1930	1931
Brantley, Hassell, Spring Hope; Jeff. Med. Coll., 1888	1888	1901

Name and Address	Licensed	Joined State Society
Broadway, R. E., Tarboro; Med. Coll. of S. C., 1911	1923	1926
Coppedge, T. O., Nashville; Coll. of Phys. and Surg., Balt., 1908	1909	1917
Cutchin, J. Henry, Whitakers; Univ. Coll. of Med., Rich., 1911	1911	1915
Deans, A. W., Battleboro; Med. Coll. of Va., 1915	1915	1917
DeLoatch, M. W., Tarboro; Med. Coll. Va., 1928	1928	1930
Green, Wm. W., Tarboro; Univ. N. C., 1908	1908	1910
Hines, E. R., Rocky Mount; Med. Coll. of S. C., 1916	1916	1917
Jones, W. S., Nashville; 1927	1927	1927
Kinlaw, Wm. Bernard, Rocky Mount; Univ. of Pa., 1920	1920	1923
Knowles, D. L., Rocky Mount; Univ. of Pa., 1918	1918	1920
Kornegay, Lemuel W., Rocky Mount; N. C. Med. Coll., 1906	1906	1914
Lane, John L., Rocky Mount; N. C. Med. Coll., 1906	1906	1914
Martin, J. H., Red Oaks; Univ. of Nashville, 1903	1904	1916
Norton, Roy, Rocky Mount; Vanderbilt, 1928	1928	1932
Raby, J. G., Tarboro; Univ. Coll. of Med., 1911	1911	1912
Speight, J. A., Rocky Mount; Univ. of La., 1914	1915	1916
Staley, S. Walter, Rocky Mount; Med. Coll. of S. C., 1901	1901	1914
Stone, M. L., Rocky Mount; Univ. of Pa	1928	1929
Willis, B. C., Rocky Mount; Med. Coll. of Va., 1909	1916	1916

FORSYTH COUNTY SOCIETY

President: J. P. Rousseau, Winston-Salem; Univ. of Md., 1918	1920	1920
Secretary: J. Roy Hege, Winston-Salem; Univ. of Md., 1916	1916	1917
Ader, O. L., Walkertown; Univ. of Pa., 1925	1925	1927
Avery, E. S., Winston-Salem; Univ. of Pa., 1928	1928	1930
Belton, J. F., Winston-Salem; Univ. of Pa., 1914	1914	1916
Benbow, J. T., Winston-Salem; N. C. Med. Coll., 1910	1910	1920
Bowers, M. A., Winston-Salem; Tulane Univ., 1911	1911	1914
Brown, F. B., Winston-Salem; Univ. of Ga., 1926	1926	1930
Butler, Leroy J., Winston-Salem; Med. Coll. of Va., 1915	1920	1921
Bynum, John, Winston-Salem, (Hon.); Univ. of N. Y., 1892	1892	1893
Carlton, Romolus L., Winston-Salem; Univ. of Md., 1906	1906	1908
Casstevens, J. C., Clemmons; Va. Med. Coll., 1926	1926	1927
Combs, Fieldings, Winston-Salem; Med. Coll. of Va., 1923	1931	1932
Cook, J. L., Winston-Salem; Univ. of Pa., 1925	1925	1927
Cooke, G. C., Winston-Salem; Univ. of Md., 1919	1919	1920
Couch, V. F., Winston-Salem; P. and S., New York, 1911	1911	1919
Craig, S. D., Winston-Salem; Tulane Univ., 1908	1911	1912
Dalton, Wm. N., Winston-Salem; N. C. Med. Coll., 1904	1904	1905
Davis, Thos. W., Winston-Salem, (Hon.); S. C. Med. Coll., 1898	1899	1899
DeLaney, C. O., Winston-Salem; Jefferson, 1919	1919	1926
Dodge, Eva F., Winston-Salem; Med. Coll. Univ. of Md., 1925	1932	1932
Garvey, Fred K., Winston-Salem; Univ. of Cincinnati, 1925	1925	1933
Garvey, R. R., Winston-Salem; N. C. Med. Coll., 1915	1915	1919
Gray, Eugene Price, Winston-Salem; Johns Hopkins, 1906	1907	1909
Grimes, W. L., Winston-Salem; Johns Hopkins, 1910	1910	1915
Hanes, F. M., Winston-Salem; Johns Hopkins, 1908	1916	1917
Hart, O. J., Winston-Salem; Med. Coll. of S. C., 1925	1930	1932
Holmes, Geo. W., Winston-Salem; Med. Coll. of Va., 1931	1931	1933
Hurdle, S. W., Winston-Salem; Jeff. Med. Coll., 1914	1914	1916
Johnson, Wingate M., Winston-Salem; Jeff. Med. Coll., 1908	1908	1911
Jones, Beverly N., Winston-Salem; Med. Coll. of Va., 1915	1915	1921
Kapp, Henry H., Winston-Salem, (Hon.); Jeff. Med. Coll., 1901	1901	1904
Keiger, O. R., Winston-Salem; Univ. Coll. of Med., Richmond, 1911	1911	1914

Name and Address	Licensed	Joined State Society
Kerr, Jas. Edwin, Winston-Salem, (Hon.); Univ. of Md., 1897	1898	1898
Kirby, W. L., Winston-Salem; Vanderbilt, 1925	1926	1930
Lassiter, V. C., Winston-Salem; Emory Univ., 1925	1928	1928
Linville, Aaron Y., Winston-Salem, (Hon.); Univ. of N. Y., 1889	1889	1896
Lockett, Everett A., Winston-Salem, (Hon.); Univ. of Pa., 1902	1904	1904
Long, Vann McKee, Winston-Salem; N. C. Med. Coll., 1906	1906	1911
McCants, C. H., Winston-Salem; Med. Coll. of S. C., 1925	1929	1931
Moore, R. A., Winston-Salem; N. C. Med. Coll., 1911	1911	1917
Munt, H. F., Winston-Saleem; Va. Med. Coll., 1911	1914	1916
Paddison, Jno. Robt., Kernersville; Univ. of Md., 1902	1902	1913
Pepper, John Kerr, Winston-Salem; P. and S., Balt., 1907	1908	1908
Perkins, J. R., Winston-Salem; Va. Med. Coll., 1904	1910	1917
Pfohl, Samuel F., Winston-Salem, (Hon.); Univ. of Pa., 1894	1898	1898
Pool, B. B., Winston-Salem; Jeff. Med. Coll., 1923	1923	1925
Poole, C. Glenn, Winston-Salem; Tulane, 1924	1924	1927
Rankin, S. W., Winston-Salem; Jeff. Med. Coll., 1912	1912	1914
Redfern, T. C., Winston-Salem; L. I. Med. Coll. Hosp., 1916	1921	1921
Salmons, L. R., Winston-Salem; N. C. Med. Coll., 1912	1912	1916
Simmons, R. R., Winston-Salem; Va. Med. Coll., 1917	1923	1924
Slate, John S., Winston-Salem; Univ. Coll. Med, Richmond, Va., 1900	1899	1920
Spainhour, Ellis H., Winston-Salem, (Hon.); Balt. Med. Coll., 1898	1898	1898
Speas, D. C., Rt. 2, Winston-Salem; Univ. of Md., 1911	1913	1924
Speas, W. P., Winston-Salem; Med. Coll. of Va	1911	1912
Spencer, Wm. O., Winston-Salem, (Hon.); Jeff. Med. Coll., 1891	1891	1894
Spicer, Richard W., Winston-Salem; N. C. Med. Coll., 1910; Univ. of Pa., 1911	1910	1916
Sprunt, W. H., Jr., Winston-Salem; Univ. of Pa., 1918	1918	1925
Street, C. A., Winston-Salem; Harvard, 1918	1918	1925
Strickland, Edward F., Winston-Salem, (Hon.); Univ. of New York, 1887	1887	1893
Thompson, Edg. S., Winston-Salem; Univ. of N. Y., 1919	1919	1921
Tuttle, Reuben G., Winston-Salem; N. C. Med. Coll., 1909	1909	1913
Valk, A. deT., Winston-Salem; Johns Hopkins, 1910	1913	1914
Vestal, T. F., Winston-Salem	.....	1932
Wall, R. L., Winston-Salem; Jeff. Med. Coll., 1912	1912	1914
Whittington, Jas. B., Winston-Salem; N. C. Med. Coll., 1911	1911	1913
Wyatt, Wortham, Winston-Salem; Univ. of Pa., 1913	1913	1916
Wylie, W. DeK., Winston-Salem; Univ. of Va., 1924	1926	1928
Yoder, Paul A., Winston-Salem; Univ. Pa., 1923	1923	1925

FRANKLIN COUNTY SOCIETY

President:	.....	.....
Secretary: R. F. Yarborough, Louisburg, (Hon.); Geo. Wash. Univ., 1898	1899	1899
Burt, S. P., Louisburg, (Hon.); P. and S., Balt., 1896	1896	1904
Cheves, W. G., Bunn; Jeff. Med. Coll., 1925	1925	1933
Johnson, Harry H., Louisburg; Coll. of P. and S., Baltimore, 1915	1919	1919
Perry, A. H., Wood; Univ. of Md. and P. and S., Balt., 1924	1924	1925
Perry, H. G., Louisburg; P. and S., Balt., 1915	1915	1916
Timberlake, C. V., Youngsville; Jefferson Med. Cooll., 1915	1915	1922

GASTON COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President:	.....	.....
Secretary:	.....	.....
Adams, Charles E., Gastonia, (Hon.); Univ. of Md., 1897	1885	1885
Anders, McT. G., Gastonia, (Hon.); Md. Med. Coll., 1901	1902	1902
Blair, J. L., Gastonia; Atlanta Med. Coll., 1915	1920	1921
Eddleman, Hall M., Gastonia, (Hon.); College Phys. and Surg., Balt., 1886	1889	1904
Garrison, D. A., Gastonia, (Hon.); Louisville Med. Coll., 1896	1896	1900
Groves, R. B., Lowell; Med. Coll. of Va., 1924	1924	1924
Howser, Forest M., Cherryville; Univ. of Pa., 1928	1929	1930
Lyday, C. E., Gastonia; Atlanta Sch. Med., 1910	1912	1913
McDowell, R. H., Belmont; Univ. of Md., 1929	1930	1931
Moore, B. D., Mount Holly; Med. Coll. of Va., 1915	1915	1921
Patrick, Geo. R., Jr., Bessemer City; Univ. of Md., 1916	1916	1920
Quickel, Thos. C., Gastonia; Tulane Univ., 1900	1899	1904
Rhyne, Robt. E., Gastonia; N. C. Med. Coll., 1907	1907	1908
Swann, Jos. F., Gastonia, (Hon.); P. & S. Balt., 1896	1896	1904
Wilkins, S. A., Dallas, (Hon.); Univ. of Ky., 1902	1903	1903

GATES COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Blanchard, T. W., Hobsville; Med. Coll. of Va., 1911	1911	1919
Carter, Thomas L., Gatesville; Med. Coll. of Va., 1917	1917	1928

GRANVILLE COUNTY SOCIETY

President: R. W. Taylor, Oxford; Tulane Univ., 1926	1926	1928
Secretary: Joseph A. Morris, Oxford, (Hon.); Vanderbilt Univ., 1890	1893	1899
Bradsher, J. S., Stovall; Univ. of Va., 1925	1925	1927
Daniel, N. C., Oxford; N. C. Med. Coll., 1895	1895	1902
Hays, B. K., Oxford, (Hon.); Univ. Coll. of Med., Va., 1894	1894	1897
Noblin, Roy L., Oxford; Med. Coll. Va., 1924	1924	1924
Slaughter, F. G., Oxford; Johns Hopkins, 1930	1930	1932
Taylor, Wm. L., Oxford, (Hon.); Univ. of Va., 1900	1901	1901
Thomas, Wm. N., Oxford; Va. Med. Coll., 1911	1911	1914
Thompson, Joseph W., Creedmoor; Ky. Univ. Louisville, 1904	1907	1912

GREENE COUNTY SOCIETY

President: W. B. Murphy, Snow Hill; Univ. Coll. of Med., Va., 1903	1903	1905
Secretary: F. W. Carroll, Hookerton; Med. Coll. of Va., 1925	1926	1927
Dawson, W. E., Hookerton; Jefferson, 1920	1920	1922
Harper, J. H., Snow Hill; Jefferson, 1905	1906	1907
Whittington, Wm. W., Snow Hill, (Hon.); Louisville Med. Coll., 1895	1895	1902

GUILFORD COUNTY SOCIETY

President: R. A. Schoonover, Greensboro; Baltimore Med. Coll., 1905	1912	1912
Secretary: Arthur D. Owenby, Greensboro; Med. Coll. Va., 1920	1925	1927
Ashworth, W. C., Greensboro, (Hon.); P. and S., Balt., 1892	1892	1894
Aydlett, H. T., Greensboro; Univ. of Va., 1894	1895	1907
Banner, A. C., Greensboro; Jeff. Med. Coll., 1920	1920	1922
Banner, Chas. W., Greensboro, (Hon.); Univ. of Md., 1899	1899	1901
Battle, John T. J., Greensoro, (Hon.); P. and S., Balt., 1884	1884	1890

Name and Address	Licensed	Joined State Society
Beray, John, Greensboro; Jeff. Med. Coll., 1908	.....	.....
Bonner, O. B., High Point; Univ. of Md., 1917	1920	1921
Bowman, H. P., Greensboro; Univ. of Tenn., 1894	1894	1905
Brockman, Harry L., High Point; Univ. of Pa., 1917	1917	1921
Buie, R. M., Greensboro; Jeff. Med. Coll., 1914	1914	1920
Burrus, John T., High Point, (Hon.); Univ. of Md., 1900; Grant Univ., 1902; Davidson College, 1898	1898	1898
Cater, C. D., Greensboro; Emory Univ., 1920	1923	1924
Cater, R. L., Greensboro; Emory Univ., 1916	1932	1932
Cole, Walter F., Greensboro; Johns Hopkins, 1909	1909	1910
Collings, Ruth M., Greensboro; Univ. of Pa., 1923	1926	1927
Cozart, S. R., Greensboro; Med. Coll. of Va., 1923	1923	1925
Davis, P. B., High Point; Jefferson, 1926	1926	1929
Davis, R. B., Greensboro; Med. Coll. of Va., Richmond, 1915	1916	1917
Dees, Ralph Erastus, Greensboro; Univ. of Md., 1906	1908	1909
Dees, Rigdon O., Greensboro; Univ. of Md., 1906	1907	1908
Dick, Julius Vance, Gibsonville; Univ. of N. C., 1907	1907	1908
Durham, C. W., Greensboro; Geo. Wash. Univ., 1927	1928	1929
Edwards, V. E., Greensboro; Univ. of Md., 1913	1913	1913
Flagge, Philip W., High Point; Wash. Univ., St. Louis, 1902	1905	1919
Fortune, Alex. F., Greensboro; Univ. Coll. of Med., Va., 1900	1900	1904
Fox, N. A., Greensboro; Univ. of Pa., 1924	1924	1926
Geddie, K. B., High Point; Jeff. Med. Coll., 1921	1921	1923
Gilmore, C. M., Greensboro; Med. Coll. of Va., 1925	1925	1926
Glascock, Joy H., Greensboro; Women's Med. Coll. of Balt., 1896	1896	1907
Gove, Anna M., Greensboro, (Hon.); Women's Med. Coll. of New York, Infirmary, 1892	1894	1896
Grayson, C. S., High Point; Geo. Wash. Univ., 1906	1907	1908
Groome, J. G., High Point; Univ. of Ohio, 1924	1924	1925
Harden, R. N., Greensboro; Univ. of Pa., 1922	1922	1924
Harrison, Edmund, Greensboro, (Hon.); Univ. Coll. of Med., 1896	1900	1900
Harrison, Edward T., High Point; Johns Hopkins Medical School, 1926	1926	1928
Harvey, W. W., Greensboro; Emory Univ., 1920	1922	1923
Hiatt, Houston B., High Point; Univ. of Md., 1907	1907	1910
Holt, D. W., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Hudson, C. C., Greensboro; Univ. Coll. of Med. of Va., 1910	1918	1924
Jackson, Walter Leo., High Point; N. C. Med. Coll., 1911	1911	1913
Jennings, C. W., Greensboro; Med. Coll. of Va., 1916	1916	1926
Jones, Wm. M., Greensboro, (Hon.); Univ. of Md., 1903	1903	1903
Julian, Charles A., Greensboro, (Hon.); Louisville Med. Coll., 1888	1891	1892
Keiger, James A., Greensboro; Univ. of Va., 1916	1916	1919
Knight, Wm. P., Greensboro, (Hon.); Balt. Med. Coll., 1898	1898	1898
Lackey, M. A., High Point; N. C. Med. Coll., 1917	1923	1924
Le Bauer, S. F., Greensboro; Univ. of Va., 1929	1930	1932
Long, E. F., High Point; Med. Coll. of Va., 1909	1909	1912
Lyday, R. O., Greensboro; Univ. of Pa., 1920	1920	1927
McAnnally, James McG., High Point; Univ. of Pa., 1927	1927	1927
McAnnally, Wm. J., High Point, (Hon.); Balt. Med. Coll., 1897	1896	1899
McCain, Wm. R., High Point, (Hon.); Univ. of Md., 1897	1898	1898
McGee, J. M., Greensboro; Univ. of Pa., 1925	1927	1927
Maness, A. K., Greensboro; Jeff. Med. Coll., 1928	1928	1929
Mann, I. Thurman, High Point; Jeff. Med. Coll., 1912	1912	1915
Meadows, W. J., Greensboro; Med. Coll. of Ala., 1894	1899	1904

Name and Address	Licensed	Joined State Society
Moseley, Charles W., Greensboro, (Hon.); Balt. Med. Coll., 1893	1893	1896
Norment, W. B., Greensboro; Jeff. Med., 1922	1922	1932
Ogburn, H. H., Greensboro; Johns Hopkins Univ., 1913	1913	1914
Parker, H. R., Greensboro; Univ. of Syracuse, 1923	1924	1925
Pate, F. J., Greensboro; Univ. of Md., and P. and S., Balt., 1908	1908	1915
Patterson, Fred M., Greensboro; Univ. of Pa., 1924	1924	1928
Post, J. J., Greensboro; Columbia Univ., 1919	1925	1926
Ravenel, S. F., Greensboro; Johns Hopkins, 1923	1923	1926
Reaves, C. R., Greensboro; Univ. of the South, 1906	1913	1913
Reaves, W. P., Greensboro; Univ. of the South, 1903	1905	1907
Reitzel, Claude E., High Point, (Hon.); P. and S., Atlanta, 1902	1902	1902
Rhudy, Booker, E., Greensboro; Med. Coll. Va., 1916	1926	1927
Robinson, Robt. S., Greensboro; Med. Coll. of Va., 1930	1930	1932
Saunders, S. Stewart, High Point; Harvard Med. School, 1924	1926	1927
Sharp, O. L., Greensboro; Jeff. Med. Coll., 1922	1924	1925
Sharpe, F. A., Greensboro; Univ. of Va., 1916	1916	1920
Shelburne, P. A., Greensboro, Univ. of Va., 1927	1928	1928
Simmons, L. L., Greensboro; Univ. of Tenn., 1893; Vanderbilt, Univ., 1899	1918	1919
Slate, J. W., High Point; Univ. Coll. of Med., Rich., 1900	1899	1925
Smith, Alick T., Med. Coll. of Va., 1908	.....	1913
Spruill, Jos. L., Jamestown; Univ. of Md., 1895	1895	1907
Stanton, D. A., High Point, (Hon.); Vanderbilt Univ., 1887	1887	1891
Sumner, E. A., High Point; Baylor Univ., Tex., 1925	1926	1927
Tankersley, J. W., Greensboro; Jeff. Med. Coll., 1906	1906	1907
Taylor, F. R., High Point; Univ. of Pa., 1913	1913	1915
Taylor, James N., Greensboro; Med. Col. of Va., 1901	1902	1905
Taylor, S. R., Greensboro; Univ. of Pa., 1921	1921	1924
Taylor, Wesley, Greensboro; Ann Harbor, 1899	1925	1926
Thomas, J. G., Greensboro; Med. Coll. Va., 1915	1915	1920
Thompson, C. D., High Point; Univ. of Tenn., 1901	1901	1904
Turner, J. P., Greensboro; Univ. of Md., 1896	1897	1904
Whittington, Claude, Greensboro; Univ. of Md., 1927	1927	1929
Wilkerson, C. E., Greensboro; Univ. of Nashville, 1907	1908	1909
Williams, John D., Guilford Station, (Hon.); Vanderbilt Univ., 1898	1898	1898
Wilson, Albert R., Greensboro, (Hon.); Jeff. Med. Coll., 1882	1882	1882
Wolfe, H. C., Greensboro; Med. Coll. of Va., 1917	1917	1920
Wolff, D. R., Greensboro; Jeff. Med. Coll., 1918	1918	1920
York, Alexander A., High Point; Chattanooga Med. Coll., 1907	1907	1909

HALIFAX COUNTY SOCIETY

President: H. G. Thigpen, Scotland Neck; Jeff. Med. Coll., 1917	1917	1920
Secretary: Z. P. Mitchell, Weldon; Med. Coll. of Va., 1920	1920	1921
Beckwith, R. P., Roanoke Rapids; Univ. of Pa., 1911	1913	1916
Jarman, F. G., Roanoke Rapids; Univ. Coll. of Med., Va., 1911	1914	1916
Lassiter, H. G., Weldon; Jeff. Med. Coll,. 1918	1918	1920
Long, T. W. M., Roanoke Rapids; Univ. Coll. of Med., Va., 1908	1909	1910
Martin, J. W., Roanoke Rapids; Med. Coll. of Va., 1916	1919	1920
Neville, C. H., Scotland Neck; Tulane Univ., 1927	1927	1927
Nicholson, B. M., Enfield; Va. Univ. Coll. of Med., 1910	1910	1913
Royster, Thomas H., Roanoke Rapids; Univ. Coll. of Med., Richmond, 1908	1908	1914
Smith, O. F., Scotland Neck; Univ. Coll. of Va., 1899	1899	1904

Name and Address	Licensed	Joined State Society
Suiter, W. G., Weldon; Med. Coll. of Va., 1917	1917	1920
Weathers, Bahnson, Rosemary; Wash. Univ. Med. School, St. Louis, 1917	1921	1922

HARNETT COUNUTY SOCIETY

President:	.....	.....
Secretary: A. T. Wyatt, Lillington; Jeff. Med. Coll., 1919	1919	1927
Corbett, C. L., Dunn; Emory Univ., 1927	1927	1928
Fleming, Fred, Buies Creek	.....	1933
Fuquay, G. L., Coats	.....	1933
Halford, Jos. W., Lillington; Geo. Wash. Univ., 1904	1905	1905
Hicks, Isham Faison, Dunn, (Hon.); N. C., Med Coll., 1902	1902	1904
Highsmith, Charles, Dunn, (Hon.); Balt. Med. Coll., 1898	1898	1898
Holt, Wm. P., Erwin, (Hon.); Jeff. Med. Coll., 1895	1895	1901
Holt, Wm. P., Jr., Jeff. Med. Coll., 1926	1926	1927
McKay, Joseph F., Buies Creek, (Hon.); S. C. Med. Coll., 1884	1885	1900
McLean, John W., Godwin; N. C. Med. Coll., 1902	1902	1906
Martin, J. F., Dunn; N. C. Med. Coll., 1905	1905	1918
Melvin, Wayman C., Linden; Univ. Coll. of Med., Richmond, 1900	1900	1905
Odell, J. W., Dunn; Med. Dept. Univ. of Ga., 1926	1928	1929
Parker, Paul G., Erwin; Med. Coll. of Va., 1916	1916	1917
Peede, A. W., Lillington	.....	1933

HAYWOOD COUNTY SOCIETY

President: R. H. Stretcher, Waynesville; Rush Med. Coll., 1927	1927	1930
Secretary: J. R. McCracken, Waynesville, (Hon.); N. C. Med. Coll., 1902	1902	1903
Abel, J. F., Waynesville, (Hon.); Univ. of Balt., 1892	1892	1899
Davis, F. M., Canton; Vanderbilt Univ., 1894	1894	1904
Duckett, V. H., Canton; Univ. of Pa., 1930	1930	1932
Francis, Wm. G., Waynesville; Jeff. Med. Coll., 1915	1916	1925
Johnson, W. C., Canton; Tulane Univ. of La., 1912	1912	1917
Kirkpatrick, W. L., Waynesville; Univ. Vanderbilt, 1894	1894	1895
Lancaster, N. F., Waynesville; Med. Coll. of Va., 1931	1932	1933
McCracken, M. H., Canton; Univ. of Louisville, 1930	1930	1933
Pate, J. F., Canton; Med. Coll. of S. C., 1927	1927	1928
Reeves, J. L., Canton; Vanderbilt, 1913	1913	1917
Russell, Jesse M., Canton; Univ. of Nashville, 1911	1911	1912
Stringfield, Samuel L., Waynesville; Jeff. Med. Coll., 1905	1905	1907
Stringfield, Thomas, Waynesville, (Hon.); Vanderbilt Univ., 1898	1898	1899

HENDERSON COUNTY SOCIETY

President: W. O. Allen, Hendersonville; Med. Coll. of S. C., 1925	1926	1926
Secretary: L. R. Staton, Hendersonville; Univ. of Md., 1929	1929	1931
Brown, J. S., Hendersonville, (Hon.); Northwestern Univ., 1893	1894	1895
Brown, J. S., Jr., Hendersonville; Univ. of Tulane, 1925	1926	1927
Dixon, Guy E., Hendersonville, (Hon.); P. and S., St. Louis, 1903	1903	1903
Edgerton, Jas. L., Hendersonville, (Hon.); Univ. of Md., 1877	1889*	1890
Fauntleroy, Jas. W., Zirconia; P. and S., Columbia	1900	1930
Sample, R. C., Hendersonville; Univ. of Pa., 1915	1915	1919
Weddington, J. L., Hendersonville; Sou. Med. Coll., Atlanta, 1898	1925	1926
Woodcock, J. H., Hendersonville; Hos. College of Med., 1892	1894	1899

*Registered.

HERTFORD COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: L. M. Futrell, Murfreesboro; Va. Med. Coll., 1914	1914	1918
Secretary J. Gaddy Matheson, Ahoskie; Jeff., 1929	1929	1931
Mitchell, Paul H., Ahoskie; Univ. Coll. of Med., Richmond, 1907	1907	1908
Pollard, W. B., Winton; Univ. of Pa., 1899	1903	1905
Ruffin, D. W., Ahoskie; Med. Coll. of Va., 1932	1932	1932
Walker, L. K., Ahoskie; Univ. of Md., 1911	1911	1917

HOKE COUNTY SOCIETY

President: G. W. Brown, Raeford; Ky. School of Med., Louisville, 1898	1900	1900
Secretary: R. L. Murray, Raeford; Univ. of Md., 1923	1923	1925
Bittinger, S. M., Sanatorium; Geo. Wash. Univ., 1918	1924	1924
Easom, H. F., Sanatorium; Wash. Univ. Med. School	1929	1929
McBrayer, L. B., Southern Pines, (Hon.); Louisville Med. Col., 1899	1899	1900
McCain, P. P., Sanatorium; Univ. of Md., and Coll. P. and S., Balt., 1911	1914	1914
Matheson, R. A., Raeford; Jeff. Med. Coll., 1926	1926	1928
Milham, C. G., Sanatorium; Jeff. Med. Coll., 1927	1927	1930
Thomas, C. D., Sanatorium; Univ. of Indiana, 1926	1930	1930
Thornton, W. F., Sanatorium; Baylor Univ., 1927	1927	1931
Williams, J. H., Sanatorium; Jeff. Med. Coll., 1920	1920	1922

HYDE COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....

IREDELL-ALEXANDER COUNTIES SOCIETY

President: Jas. W. Davis, Statesville; Univ. of Pa., 1913	1913	1915
Secretary: Chas. B. Herman, Statesville; Jeff. Med. Coll., 1923	1923	1925
Adams, M. R., Statesville, (Hon.); Univ. of Md., 1878	1884	1884
Alexander, Jas. M., Statesville; Georgetown Univ., 1925	1926	1927
Anderson, Thos. Eli., Statesville, (Hon.); Jeff. Med. Coll., 1878	1879	1879
Asbill, David S., Statesville; Med. Coll. of S. C., 1926	1929	1930
Bell, A. E., Mooresville; Univ. of Md., and Coll. of P. and S., 1897	1897	1904
Crouch, T. D., Stony Point; N. C. Med. Coll., 1909, and Univ. of Md., 1910	1909	1915
Gilmore, W. D., care of: State Sanatorium, Howell, Mich.; Univ. of N. C., 1903	1903	1904
Goode, T. V., Statesville; Univ. Coll. of Med., Va., 1912	1912	1916
Jurney, Peter C., Turnersburg; Med. Coll. of Va., 1901	1901	1904
Little, Lonnie M., Statesville; Jeff. Med. Coll., 1925	1925	1927
Long, H. F., Statesville, (Hon.); Balt. Med. Coll., 1891	1892	1893
McElwee, Ross S., Statesville; Univ. of Md., 1909	1909	1910
McLaughlin, J. E., Statesville, (Hon.); Univ. of Md., 1886	1886	1896
McLelland, W. D., Moresville; Jeff. Med. Coll., 1913	1913	1917
Myers, D. L., Jennings; Tulane, 1925	1928	1929
Nicholson, C. R., Statesville; N. C. Med. Coll., 1912	1912	1916
Pressly, Jas. L., Statesville; Jeff. Med. Coll., 1925	1925	1928
Rhyne, S. A., Statesville; N. C. Med. Coll., 1915	1915	1920
Sharpe, Frank L., Statesville; Univ. of N. C., 1904	1904	1905
Shaw, L. R., Statesville; Med. Coll. of Va., 1930	1930	1931

Name and Address	Licensed	Joined State Society
Sherrill, C. L., Statesville; N. C. Med. Coll., 1914	1914	1915
Sloan, A. B., Mooresville; Med. Coll. of Va., 1924	1924	1926
Talley, J. A., Troutman; Univ. of N. C., 1909	1910	1917
Tatum, Roy C., Statesville; Jeff. Med., 1919	1919	1920
Taylor, G. W., Mooresville; N. C. Med. Coll., 1906	1906	1917
Templeton, J. Y., Mooresville; Jeff. Med. Coll., 1912	1913	1927
Thurston, Asa, Taylorsville; Univ. of Md., 1909	1909	1914
Trivette, W. A., Hamptonville; Med. Coll. of Va., 1916	1916	1925

JACKSON COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Nichols, A. A., Sylva; Univ. of Nashville, 1898	1904	1904
Nichols, Asbury S., Sylva; Tenn. Med. Coll., 1906	1907	1913
Wilkes, Grover C., Sylva; N. C. Med. Coll., 1916	1916	1920

JOHNSTON COUNTY SOCIETY

President: Vartan A. Davidian, Smithfield; Univ. Kiev, Russia	1929	1930
Secretary: Edwin N. Booker, Selma; Univ. of Va., 1925	1925	1930
Aycock, F. M., Princeton; Med. Coll. of Va., 1921	1921	1926
Brooks, H. E., Clayton; Med. Coll. of Va., 1917	1917	1923
Coleman, G. S., Kenly; Med. Coll. of Va., 1907	1907	1909
Duncan, S. A., Benson; Tulane Univ., 1924	1924	1926
Fitzgerald, J. Herbert, Smithfield; Jeff. Med. Coll., 1920	1920	1922
Grady, Jas. C., Kenly, (Hon.); Balt. Univ. School of Med., 1887	1887	1890
Hocutt, Battle A., Clayton; Univ. of N. C., School of Med., 1906	1906	1908
Hooks, Thel., Smithfield, (Hon.); Med. Coll. of Va., 1901	1901	1903
McLemore, George A., Smithfield; Univ. of N. C., 1906	1906	1908
Massey, C. C., Smithfield; Jeff. Med. Coll., 1923	1923	1925
Oliver, Robert D., Princeton; Univ. of Md., 1930	1930	1932
Parker, G. E., Benson, (Hon.); Coll. of P. and S., Balt., 1886	1889*	1904
Person, J. B., Selma, (Hon.); Med. Coll. of Va., 1897	1897	1900
Stanley, John H., Four Oaks; Univ. of N. C., 1904	1904	1906
Utley, H. H., Benson; Balt. Med. Coll., 1906	1906	1910
Vick, Geo. D., Selma; Jeff. Med. Coll., 1906	1906	1907
Wilson, W. G., Smithfield; Jeff. Med. Coll., 1921	1921	1924

JONES COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Bell, J. C., Maysville; P. and S., Balt., 1910	1915	1922
Hammond, A. F., Pollocksville; Univ. Med. Coll., Va., 1903	1903	1914
Page, B. W., Trenton; Tulane Univ., 1909	1909	1919

LEE COUNTY SOCIETY

President: Lynn McIver, Sanford, (Hon.); Kentucky Univ., 1901	1902	1902
Secretary: Floyd L. Knight, Sanford; Univ. of Va., 1924	1925	1926
Blue, Waylon, Jonesboro; Med. Coll. of Va., 1925	1925	1926
Chiles, George C., Sanford; Med. Coll. of Va., 1926	1928	1928
Foster, J. F., Sanford; N. C. Med. Coll., 1916	1916	1919
Lutterloh, I. Hayden, Jr., Sanford; Jeff. Med. Coll., 1921	1921	1922
Matthews, M. L., Sanford; Univ. of N. C., 1903	1903	1904

*Registered.

Name and Address	Licensed	Joined State Society
O'Briant, A. L., Sanford; Jeff. Med. Coll., 1920	1920	1922
Sowers, Roy G., Jonesboro; Univ. of Md., 1923	1923	1924
Watson, Leon, Broadway; N. C. Med. Coll., 1900	1900	1904

LENOIR COUNTY SOCIETY

President: Thos. L. Lee, Kinston; Med. Coll. Va., 1926	1926	1927
Secretary: Kilby P. Turrentine, Kinston; Rush Med. Coll., 1931	1932	1933
Boney, Elwood R., Kinston; Univ. of Pa., 1926	1926	1927
Carr, M. L., La Grange; Med. Coll. of Va., 1916	1916	1920
Dixon, Wm. H., Kinston, (Hon.); Med. Coll. of Va., 1901	1901	1901
Hardy, Ira M., Kinston, (Hon.); Med. Coll. of Va., 1901	1902	1902
Lee, Mike, Kinston; Tulane Univ., 1926	1926	1927
McCuiston, A. M., Kinston; N. C. Med. Coll., 1911	1911	1917
Mangum, C. P., Kinston; Jeff. Med. Coll., 1918	1918	1920
Moseley, Z. V., Kinston; Va. Univ. Coll. of Med., 1913	1913	1914
Parrott, Albert DeK., Kinston; Univ. Coll. of Med., 1906	1906	1908
Parrott, M. C., Kinston; Tulane Univ., 1917	1917	1919
Parrott, Wm. T., Kinston, (Hon.); Tulane Univ., 1899	1899	1901
Peery, Vance P., Kinston; Med. Coll. of Va., 1916	1917	1917
Sabiston, Frank, Kinston; Univ. of Md., 1918	1919	1926
Tyndall, R. G., Kinston; Univ. of Pa., 1928	1928	1931
West, B. C., Kinston; Univ. of Pa., 1924	1924	1926
West, C. M., Kinston; Univ. of Pa., 1917	1917	1920
Whitaker, Paul F., Kinston; Med. Coll. of Va., 1922	1922	1924
Wooten, Floyd P., Kinston; Jeff. Med. Coll., 1920	1920	1923

LINCOLN COUNTY SOCIETY

President: W. G. Bandy, Lincolnton; Vanderbilt Univ., 1908	1912	1916
Secretary: W. V. Costner, Lincolnton; Jeff. Med. Coll., 1924	1925	1927
Cornwell, A. M., Lincolnton; Geo. Wash. Univ., 1927	1927	1928
Crowell, L. A., Lincolnton, (Hon.); Balt. Med. Coll., 1892	1892	1898
Crowell, L. A., Jr., Lincolnton; Tulane Med. Dept., 1930	1930	1930
Davidson, John E. S., Charlotte, (Hon.); Univ. of Md., 1894	1898	1898
Edwards, F. D., Lawndale, R. 1; Atlanta Med., 1914	1916	1919
Elliott, W. F., Lincolnton; Pa. Medico-Chir. Coll., 1916	1916	1917
Gamble, J. F., Lincolnton; Univ. of Tenn., 1903	1915	1919
Gamble, J. R., Lincolnton; Univ. of Tenn., 1911	1911	1912
Hoover, C. H., Crouse; Chattanooga Med. Coll., 1900; Balt. Med. Coll., 1903	1903	1903
Jacocks, W. P., New York City; Univ. of Pa., 1911	1911	1913

McDOWELL COUNTY SOCIETY

President: B. L. Ashworth, Marion, (Hon.); P. and S., Balt., 1892	1893	1900
Secretary: R. B. Butt, Marion; Emory Univ., Atlanta, 1920	1920	1921
Hemphill, C. H., Valdese; Univ. of Md., 1913	1913	1916
Johnson, John B., Old Fort; Univ. Louisville Med. Dept., 1905	1914	1914
Jonas, John F., Marion, (Hon.); Balt. Med. Coll., 1903	1903	1903
Justice, Gaston B., Marion; P. and S., Atlanta, 1907	1907	1907
Kirby, Guy S., Marion, (Hon.); Univ. Coll. of Va., 1897	1896	1903
McIntosh, D. M., Old Fort; Med. Coll. of Va., 1904	1907	1909
Miller, J. F., Marion; Med. Chi. Phila., 1906	1915	1919
Robinson, W. A., Old Fort; Med. Coll. of Va., 1900	1903	.....
Wood, Frank, Marion; Univ. of Pa., 1928	1931	1932

MACON-CLAY COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President:	.....	.....
Secretary:	.....	.....
Angel, Edgar, Franklin; Jeff. Med. Coll., 1928	.....	.....
Angel, Furman, Franklin; Jeff. Med. Coll., 1918	1923	1924
Killian, Frank M., Franklin; Univ. of Louisville, Ky., 1929	1929	1930
Lyle, S. H., Franklin, (Hon.); Univ. of Nashville, 1883	1881	1882
Rogers, W. A., Franklin, (Hon.); Univ. of Nashville, 1898	1898	1898

MADISON COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Kimberly, David, Jr., Hot Springs; Univ. of Cinn., 1924	1926	1927
McElroy, J. L., Marshall; Washington Univ., 1930	1930	1932
Moore, Jos. N., Marshall; Univ. of N. C., 1905	1905	1909
Robinson, Willard L., Mars Hill; Vanderbilt Univ., 1896	1903	1904
Sams, W. A., Marshall; Lincoln Memo., 1911	1919	1920

MARTIN-WASHINGTON-TYRRELL COUNTIES SOCIETY

President:	.....	.....
Secretary:	.....	.....
Bray, T. L., Plymouth; Univ. of Md., 1916	1916	1919
Long, Edgar M., Hamilton; Univ. of Md., 1909	1909	1910
McGowan, Claudius, Plymouth; Med. Coll. of Va., 1917	1917	1922
Nelson, Robert J., Robersonville, (Hon.); Louisville Med. Coll., 1890	1890	1893
Pittman, E. E., Oak City; Med. Coll. of Va., 1919	1919	1920
Rhodes, Jas. S., Williamston; Med. Coll. of Va., 1906	1906	1907
Saunders, Jos. H., Williamston; Univ. Coll. of Med., Va., 1905	1905	1909
Smithwick, James E., Jamesville; Univ. Coll. of Med., 1897	1897	1904
Ward, Jesse E., Robersonville; Univ. of Md., 1904	1904	1905
Ward, Vernon Albert, Robersonville; Jeff. Med. Coll., 1908	1908	1914

MECKLENBURG COUNTY SOCIETY

President: Clarence N. Peeler, Charlotte; N. C. Med. Coll., 1906	1906	1908
Secretary: R. B. McKnight, Charlotte; Univ. of Pa., 1920	1920	1928
Adams, J. R., Charlotte; Univ. of Va., 1928	1932	1933
Alexander, M. Janet, Montgomery, India; Women's Med. Coll., Pa., 1917	1917	1918
Allan, William, Charlotte; P. and S., Balt., 1906	1906	1914
Allen, Sylvia, Charlotte; Columbia Univ., 1926	1932	1933
Ashe, J. R., Charlotte; Columbia Univ., 1911	1915	1915
Barret, H. P., Charlotte; Univ. of Louisville, 1908	1917	1919
Barron, A. A., Charlotte; Vanderbilt Univ., 1909	1910	1910
Black, Geo. Wm., Charlotte; Med. Coll. of Va., 1924	1924	1925
Blair, Andrew, Charlotte; U. of Pa., 1924	1925	1926
Bost. T. C., Charlotte; Geo. Washington Univ., 1915	1920	1921
Bradford, W. Z., Long Island Coll. Hospital, Brooklyn, N. Y., Univ. of Pa., 1928	.....	1930
Brenizer, A. G., Jr., Charlotte; Johns Hopkins, 1908, and Univ. of Heidelberg	1911	1911
Britt, C. S., Charlotte; Emory Univ., 1920	1925	1926
Buckner, Margaret, Charlotte; Med. Coll. of Va., 1929	1929	1932
Chambers, P. J., Charlotte; Jeff. Med. Coll., 1929	1932	1933

Name and Address	Licensed	Joined State Society
Choate, A. B., Charlotte; Med. Coll. of Va., 1929	1929	1933
Craven, Thomas, Huntersville; Jeff. Med. Coll., 1917	1917	1918
Craven, W. W., Charlotte; Univ. of Md., 1903	1904	1904
Davis, Stephen W., 501 Professional Bldg., Charlotte, N. C.; Univ. of Pa. Med. School, 1927	1927	1929
Davis, T. M., Charlotte; Univ. of Md., 1914	1931	1933
Elliott, J. A., Charlotte; Univ. of Mich., 1914	1919	1920
Faison, Elias, Charlotte; Emory Univ., 1929	1929	1933
Faison, Yates W., Charlotte; Harvard Univ., 1910	1910	1912
Ferguson, R. T., Charlotte; Univ. Coll. of Va., 1906	1909	1909
Gage, L. G., Charlotte; Univ. of Va., 1915	1921	1922
Gallant, Robert M., Charlotte; N. C. Med. Coll., 1915	1915	1916
Gaul, John Stuart, Charlotte; Medico-Chir., Phila., 1913	1922	1923
Gibbon, James W., Charlotte; Jeff. Med. Coll., 1918	1920	1921
Gibbon, Robert L., Charlotte, (Hon.); Jeff. Med. Coll., 1887	1887	1888
Hamer, W. A., Chadwick Station, Charlotte; Univ. of Md., 1930	1930	1932
Hand, Edgar H., Charlotte; N. C. Med. Coll., 1907	1907	1913
Hart, V. K., Charlotte; Univ. of Pa., 1921	1924	1925
Hipp, Edw. R., Charlotte; Univ. of Va., 1918	1920	1921
Houser, O. J., Charlotte; N. C. Med. Coll., 1914	1914	1916
Hovis, L. W., Charlotte; N. C. Med. Coll., 1904	1904	1906
Hunt, J. S., Charlotte; Vanderbilt Univ., 1929	1932	1933
Hunter, W. Myers, Charlotte; Georgetown Univ., 1905	1906	1908
Johnston, J. G., Charlotte; Med. Dept. Vanderbilt Univ., 1899	1913	1916
Kelly, Luther W., Charlotte; Univ. of Va., 1924	1926	1927
Kennedy, John P., Charlotte; Jeff. Med. Coll., 1915	1915	1920
King, Parks M., Charlotte, (Hon.); Bellevue Med. Coll., 1902	1902	1904
Kremer, C. E., Jr., Charlotte; Harvard Univ., 1929	1931	1932
Lafferty, Robert H., Charlotte; N. C. Med. Coll., 1906	1906	1908
Leinbach, Robt. F., Charlotte; Univ. of Pa., 1907	1907	1910
MacConnell, John W., Davidson; Univ. of Md., 1907	1908	1909
McCoy, Thos. M., Charlotte; N. C. Med. Coll. 1905	1906	1910
McGregor, Geo. D., Charlotte; Univ. of Va., 1925	1927	1928
McKay, Hamilton W., Charlotte; N. C. Med. Coll., 1909; Jeff. Med. Coll., 1910	1911	1913
McKay, Robert W., Charlotte; Johns Hopkins, 1923	1928	1928
McLaughlin, Calvin S., Charlotte, (Hon.); Univ. of Md., 1896	1896	1903
McPhail, L. D., Charlotte; Univ. of Md., 1900	1900	1902
Martin, Wm. F., Charlotte; Univ. of Md., 1920	1920	1923
Martin, W. J., Richmond, Va.; Univ. of Va., 1890	1891	1919
Matheson, James P., Charlotte; Univ. of Md., 1905	1902	1907
Mathews, Vann M., Charlotte; Univ. of Pa., 1918	1918	1921
Mayer, W. B., Charlotte; Univ. of Pa., 1930	1932	1933
Miller, Oscar L., Charlotte; Atlanta Coll. of P. and S., 1912	1921	1922
Misenheimer, Thos. M., Charlotte; S. C., Med. Coll., 1925	1925	1927
Moore, Alexander W., Charlotte; Univ. of Va., 1901; Univ. and Bellevue Hosp. Mde. Coll., 1902	1912	1913
Moore, Oren, Charlotte; N. C. Med. Coll., 1911	1911	1912
Moore, R. A., Charlotte; Univ. of Pa., 1923	1924	1925
Motley, Fred Elliot, Charlotte; Univ. of Mich., 1922	1926	1927
Munroe, H. Stokes, Charlotte; N. C. Med. Coll., 1902; Jeff. Med., 1903	1902	1904
Munroe, J. P., Charlotte, (Hon.); Univ. of Va., 1885	1886	1890
Myers, Alonzo, Charlotte; N. C. Med. Coll., 1911; Bellevue Hosp. Med. Coll., 1916	1911	1920

Name and Address	Licensed	Joined State Society
Nalle, B. C., Charlotte; Univ. of Va., 1903	1905	1905
Nance, C. L., Charlotte; N. C. Med. Coll., 1919	1921	1922
Neblett, H. C., Charlotte; Med. Coll. of Va., 1914	1921	1929
Newton, Howard L., Charlotte; Northwestern Univ., 1921	1923	1924
Nisbet, D. Heath, Charlotte; Harvard Med. Dept., 1917	1917	1920
Nisbet, Walter O., Charlotte, (Hon.); Med. Coll. of S. C., 1889	1889	1889
Northington, J. M., Charlotte; Med. Coll. of Va., 1905	1909	1909
Nowlin, Preston, Charlotte; Univ. of Va., 1924	.....	1930
Patterson, Reid, Charlotte; N. C. Med. Coll., 1912	1912	1913
Phillips, C. C., Charlotte; N. C. Med. Coll., 1912	1912	1917
Rankin, Watson S., Charlotte, (Hon.); Univ. of Md., 1901	1901	1901
Ranson, J. Lester, Charlotte; N. C. Med. Coll., 1911	1911	1912
Ray, F. L., Charlotte; Univ. of Va., 1919	1919	1922
Rea, G. L., Charlotte; N. C. Med. Coll., 1906	1920	1933
Robinson, C. W., Charlotte; Univ. of Pa	.....	.....
Sasser, T. J., Charlotte; Univ. Ga. Med. Dept., 1926	1929	1929
Scruggs, W. Marvin, Charlotte; Univ. of Pa., 1914	1914	1920
Shirley, H. C., Charlotte; Johns Hopkins, 1918	1921	1922
Shull, J. Rush, Charlotte; Univ. of Pa., 1910	1910	1913
Sloan, H. L., Charlotte; Univ. of Pa., 1911	1913	1914
Smith, F. C., Charlotte; Jeff. Med., 1921	1921	1925
Sparrow, Thos. De L., Charlotte; Univ. of Pa., 1920	1920	1923
Squires, Claude B., Charlotte; Jeff. Med. Coll., 1919	1919	1921
Strong, Charles M., Charlotte, (Hon.); Univ. of Md., 1889	1889	1898
Taylor, H. C., Charlotte, Chadwick Sta.; Tenn. Med., 1886	1910	1915
Thompson, S. R., Charlotte; N. C. Med. Coll., 1914	1914	1915
Todd, L. C., Charlotte; Univ. of Mich., 1918	1920	1920
Townsend, M. L., Washington, D. C.; Indiana Med. Coll., 1906	1912	1913
Tucker, John H., Charlotte; Univ. of Va., 1889	1901	1911
Tydeman, F. W. L., San Francisco, Calif.; N. C. Med. Coll., 1912	1912	1918
Wakefield, Harry A., Charlotte; N. C. Med. Coll., 1908	1908	1911
Wannamaker, Edward J., Jr., Charlotte; Univ. of Pa., 1921	1924	1924
Whisnant, Albert M., Charlotte, (Hon.); P. and S., Balt., 1893	1893	1899
White, Thomas Preston, Charlotte; Univ. of Pa., 1922	1924	1925
Wingate, G. C., Charlotte; N. C. Med. Coll., 1914	1915	1919
Winkler, Harry, Charlotte; Rush Med. Coll., 1929	1931	1931
Wishart, Wm. E., Charlotte; N. C. Med. Coll., 1911	1911	1911

MITCHELL-AVERY COUNTIES SOCIETY

President: C. F. Lambert, Spruce Pine; Jeff. Med. Coll., 1921	1921	1923
Secretary: Paul McBee, Bakersville; Virginia, 1931	1931	1933
Burleson, W. B., Plumtree; Univ. Md., 1915	1915	1916
Gouge, A. E., Bakersville; Med. Coll. of Va., 1917	1917	1920
Hardin, R. H., Banner Elk; N. C. Med. Coll., 1914	1914	1919
Peterson, C. A., Spruce Pine; N. C. Med. Coll., 1907	1907	1908
Sloop, Eustace H., Crossnore; N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908	1905	1909
Tate, W. C., Banner Elk; Tenn. Med. Coll., 1908	1909	1912

MONTGOMERY COUNTY SOCIETY

President: Alexander Frank Thompson, Troy; Med. Coll. of Indiana, 1895	1895	1904
Secretary:	.....	.....

Name and Address	Licensed	Joined State Society
Daligny, Charles, Troy, (Hon.); Univ. of Paris, 1878	1889	1891
Griffin, H. L., Star; Med. Coll. of Va., 1926	1926	1928
Harris, W. T., Troy; Med. Coll. of Va., 1925	1926	1927
Ingram, Charles B., Mt. Gilead, (Hon.); Jeff. Med. Coll., 1886	1886	1892
McMillan, J. M., Candor; P. and S., Atlanta, 1909	1909	1911
Nicholson, N. G., Jr., Mt. Gilead; N. C. Med. Coll., 1917	1917	1920

MOORE COUNTY SOCIETY

President: J. S. Milliken, Southern Pines; Jeff. Med. Coll., 1915	1915	1916
Secretary: R. G. Rosser, Vass; N. C. Med. Coll., 1909	1909	1917
Blair, A. McNeil, Southern Pines; Niagara Univ., 1897	1904	1906
Blue, A. McN., Carthage; Tulane Univ., 1915	1916	1917
Bowman, H. E., Aberdeen; N. C. Med. Coll., 1904	1904	1919
Chester, P. J., Southern Pines; N. C. Med. Coll., 1913	1913	1920
Davis, J. Franklin, High Falls; Med. Coll. of Va., 1912	1912	1914
Dickie, J. W., Southern Pines; Jeff. Med. Coll., 1918	1920	1921
Felton, R. L., Jr., Carthage; Univ. of Pa., 1927	1927	1929
Grier, Charles T., Carthage; N. C. Med. Coll., 1910	1912	1913
McDuffie, W. N., Hemp; Emory Univ. Sch. of Med., Atlanta, 1916	1920	1921
McLeod, A. H., Aberdeen; Balt. Med. Coll., 1896	1896	1904
McLeod, Vida C., Southern Pines; Baylor Univ., 1919	1931	1931
Marr, W. M., Pinehurst; Tufts Coll. Med. Sch., Boston, 1907	1909	1915
Monroe, C. R., Pinehurst; Univ. of Md., 1924	1925	1928
Mudgett, W. C., Southern Pines; Maryland Med. Coll., 1903	1908	1911
Pinkerton, F. C., Pinehurst; Univ. of Va., 1928	1930	1931
Poate, E. M., Southern Pines; Cornell Univ. Med. Coll., 1906	1921	1931
Shields, Henry B., Carthage, (Hon.); Atlanta Med. Coll., 1882	1887	1901
Street, M. E., Glendon, (Hon.); P. and S., Balt., 1893	1893	1902
Symington, John, Carthage; Univ. of Md., 1902	1927	1928

NEW HANOVER COUNTY SOCIETY

President: D. B. Sloan, Wilmington; Univ. of Pa., 1914	1914	1920
Secretary: A. H. Elliott, Wilmington; Jeff. Med. Coll., 1919	1919	1921
Bellamy, Robert H., Wilmington; Jeff. Med. Coll., 1902	1902	1902
Coddington, H. A., Wilmington; Univ. of Md., 1911	1915	1917
Cranmer, J. B., Wilmington; Univ. of N. C., 1905	1905	1907
Evans, J. E., Wilmington; Univ. of Md., 1916	1916	1916
Farthing, L. E., Wilmington; Univ. of N. C., 1906	1906	1913
Freeman, J. D., Wilmington; Med. Coll. of Va., 1918	1921	1922
Galloway, Walter Curtis, Wilmington, (Hon.); Washington Univ., 1874	1880	1880
Green, Thomas M., Wilmington; Univ. of Md., 1901	1901	1904
Hariss, Andrew H., Wilmington, (Hon.); Medico-Chir., Phila., 1893	1892	1894
Hoggard, J. T., Wilmington; Univ. Med. Coll., Rich., 1906	1906	1922
Hooper, Joseph W., Wilmington; Univ. of Md., 1909	1912	1919
Jewett, Robert D., Wilmington, (Hon.); Univ. of Va., 1888	1890	1890
Johnson, Geo. W., Wilmington; Univ. of Pa., 1920	1920	1921
Koonce, S. Everett, Wilmington, (Hon.); P. and S., Balt., 1896	1896	1900
McMillan, W. D., Wilmington, (Hon.); Univ. of Md., 1869	1889*	1892
Moore, W. Houston, Wilmington; Jeff. Med. Coll., 1910	1910	1911
Powers, Frank P., Wilmington; Univ. of Pa., 1927	1927	1928
Robertson, Jomes F., Wilmington; Univ. of Pa., 1913	1913	1916
Rodman, R. B., Wilmington; Med. Coll. of S. C., 1928	1928	1930

*Registered.

Name and Address	Licensed	Joined State Society
Rourk, M. H., Wilmington; Univ. Minn., 1929	1930	1931
Schonwald, John T., Wilmington, (Hon.); Long Island Coll. Hosp., 1979	1880	1881
Sidbury, J. B., Wilmington; Columbia Univ., N. Y., 1912	1915	1916
Wessell, John C., Wilmington, (Hon.); Univ. of Md., 1900	1900	1900

NORTHAMPTON COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Fleetwood, Jos. A., Conway; Tulane, 1921	1921	1923
Lewis, H. W., Jackson, (Hon.); Univ. of N. Y., 1887	1889*	1887
Sewell, Marion H., Jackson; Med. Coll. of Va.	1926	1927
Vaughan, J. C., Rich Square; Med. Coll. of Va., 1915	1915	1916

ONSLOW COUNTY SOCIETY

President: Lorenza D. Bryan, Sneed's Ferry; Tulane, 1910	1910	1911
Secretary: John P. Henderson, Jacksonville; Va. Med. Coll., 1918	1919	1921
Corbett, J. P., Swansboro; Wash. Univ. School of Med., 1928	1928	1930
Cox, E. L., Jacksonville, (Hon.); Univ. of Md., 1889	1889	1892
Sutton, Carl W., Richlands; Tulane, 1905	1905	1907
Turlington, W. I., Jr., Jacksonville; Univ. of N. Y., 1929	1929	1930

PAMLICO COUNTY SOCIETY

President: D. A. Dees, Bayboro; Balt. Med. Coll., 1903	1903	1905
Secretary: J. J. Purdy, Oriental; Med. Coll. of Va., 1900	1914	1915
Daniels, O. C., Oriental; Med. Coll .of Va., 1903	1903	1916
McCotter, St. Elmo, Bayboro; P. and S., Atlanta, 1908	1908	1909

PASQUOTANK-CAMDEN-CURRITUCK-DARE COUNTIES SOCIETY

President: W. T. Griggs, Poplar Branch, (Hon.); Univ. of Va., 1896	1896	1901
Secretary: E. M. Mann, Moyock; Med. Coll. of Va., 1931	1932	1933
Fearing, Isaiah, Elizabeth City; P. and S., Balt., 1896	1896	1904
Johnston, W. W., Manteo; N. C. Med. Coll., 1913	1913	1920
Kendrick, R. L., Elizabeth City; Univ. of Va., 1913	1913	1915
Kenfield, H. W., Hatteras	1924	1933
Lister, E. W., Elizabeth City; Med. Coll. of Va., 1896	1896	1916
Mann, S. M., Moyock; P. and S., Baltimore, 1895	1895	1904
Peters, W. A., Elizabeth City; Med. Coll. of Va., 1915	1915	1916
Sawyer, W. W., Elizabeth City; Univ. of Md., 1903	1903	1904
Stevens, W. L., Shiloh; Univ. Coll. of Va., 1912	1912	1914
Walker, H. D., Elizabeth City, (Hon.); Univ. of Md., 1902	1902	1902
Ward, I. A., Elizabeth City; Univ. of N. C., 1907	1907	1915
White, W. H. C., Elizabeth City; Univ. of Va., 1922	1929	1929
Williams, Claude B., Elizabeth City; Univ. Coll. of Med., Richmond, 1903	1903	1907

PENDER COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Taylor, W. I., Burgaw; N. C. Med. Coll., 1902	1904	1905

*Registered.

PERSON COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: John H. Merritt, Woodsdale, Rt. 1; Univ. of N. C., 1906	1907	1908
Secretary: H. M. Beam, Roxboro; Columbia Univ., 1918	1918	1919
Clay, E. L., Timberlake; Univ. of Kentucky, 1929	1929	1933
Gentry, Geo. W., Roxboro; Univ. of N. C., 1910	1910	1911
Love, Bedford E., Roxboro; Univ. of Md., 1904	1904	1905
Nichols, Austin F., Roxboro; Univ. of N. C., 1908	1908	1909
Thaxton, B. A., Roxboro; Jeff. Med. Coll., 1914	1914	1916

PITT COUNTY SOCIETY

President: Jos. E. Nobles, Greenville, (Hon.); Jeff. Med. Coll., 1899	1899	1902
Secretary: W. M. B. Brown, Greenville; Med. Coll. of Va., 1929	1929	1931
Barrett, J. M., Greenville; Univ. of Pa., 1926	1926	1927
Basnight, Thos. G., Stokes; Univ. of Md., 1904	1905	1907
Beasley, E. B., Fountain; Univ. of Pa. School of Med., 1911	1911	1915
Crisp, S. M., Greenville; Univ. of Pa., 1923	1923	1925
Dixon, G. G., Ayden; Med. Coll. of Va., 1915	1915	1917
Frizzelle, M. T., Ayden; Univ. Coll. of Med., Richmond, 1907	1907	1909
Garrenton, Cecil, Bethel; Med. Coll. of Va., 1908	1908	1915
McGeachy, R. S., Greenville, (Hon.); Bellevue Hosp., 1894	1894	1895
Pace, K. B., Greenville; Jeff. Med. Coll., 1914	1914	1920
Watson, Thomas M., Greenville; Tulane Univ., 1919	1919	1920
Winstead, J. L., Greenville; Med. School of Univ. of Md., 1925	1925	.....
Wooten, W. I., Greenville; Jeff. Med., 1920	1920	1920

POLK COUNTY SOCIETY

President: M. C. Palmer, Tryon; Med. Coll. of S. C., 1910	1911	1914
Secretary: A. J. Jervey; Tryon; Med. Coll. of S. C., 1905	1923	1925
Gantt, L. Rosa H., Tryon; Med. Coll. of S. C., 1901	1927	1932
Grady, Wm. Earle, Tryon, (Hon.); Univ. of Md., and P. and S., Balt., 1894	1895	1899
Lea, J. I., Tryon; Mich. Coll. of Med. and Surg., 1906	1916	1925
Salley, E. McQueen, Saluda; Univ. of Md., 1905	1905	1908
Smith, D. L., Saluda and Spartanburg, S. C.; S. C. Med. Coll., 1903	1926	1927

RANDOLPH COUNTY SOCIETY

President:	.....	.....
Secretary: R. P. Sykes, Asheboro; Tulane Med. Coll., 1929	1929	1932
Barnes, Dempsey, Asheboro; Med. Coll. of Va., 1925	1925	1927
Barnes, J. T., Asheboro; Med. Coll. of Va., 1929	1929	1932
Gregg, A. D., Liberty	.....	1933
Hayworth, C. A., Asheboro; Univ. of Md., 1913	1913	1914
Hubbard, Charles C., Farmer, (Hon.); Jeff. Med. Coll., 1888	1890	1900
Johnson, J. R., Ramseur; Med. Coll. of Va., 1927	1927	1929
Redding, Alex. H., Cedar Falls, (Hon.); Coll. of P. and S., Balt., 1887	1889*	1900
Sumner, G. H., Asheboro; Tulane Univ., 1923	1923	1924
Tate, C. S., Ramseur; Balt. Med. College, 1893	1896	1914

*Registered.

RICHMOND COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: S. E. Teague, Hamlet; Tulane Univ. of La., 1921	1921	1923
Secretary: A. C. Everett, Rockingham; Univ. of Md., 1897	1897	1903
Bristow, C. O., Rockingham; Jeff. Med. Coll., 1918	1920	1921
Caddell, G. C., Hoffman; N. C. Med. Coll., 1912	1912	1930
Garrett, F. B., Rockingham; N. C. Med. Coll., 1912	1912	1914
Henry, T. B., Rockingham; Columbia Univ. Coll. P. and S., N. Y., 1917	1920	1921
Howell, W. L., Ellerbe; N. C. Med. Coll., 1910	1910	1911
James, W. D., Hamlet; Jeff. Med. Coll., 1908	1908	1908
Kinsman, Henry F., Hamlet; Univ. of Vermont, 1894	1897	1904
Ledbetter, James McQ., Rockingham; Vanderbilt Univ., 1894	1894	1903
Long, Z. F., Rockingham; Univ. of Pa., 1928	1928	1930
McIntosh, W. R., Rockingham; N. C. Med. Coll., 1913	1916	1917
Parsons, W. H., Ellerbe; N. C. Med. Coll., 1916	1916	1919
Sisk, C. N., Rockingham; Univ. of Nash., 1905	1922	1922
Stancil, Wm. W., Rockingham; Univ. Coll. of Med., Va., 1906	1906	1914
Terry, Wm. Calvin, Hamlet; N. C. Med. Coll., 1911	1912	1914

ROBESON COUNTY SOCIETY

President: Leonard E. Ricks, Fairmont, (Hon.); Med. Coll. of Va., 1896	1896	1913
Secretary: A. B. Holmes, Fairmont; Jeff. Med. Coll., 1910	1910	1914
Baker, Horace M., Lumberton; Harvard Med. School, 1917	1919	1919
Beam, R. S., Lumberton; Jeff. Med. Coll., 1912	1912	1915
Bowman, E. L., McDonalds; Med. Coll. of Va., 1914	1914	1916
Britt, J. N., Lumberton; Atlanta Med. Coll., 1914	1923	1924
Faulk, J. G., Pembroke; Med. Coll. of Va., 1931	1931	1932
Hardin, E. R., Lumberton; Univ. of Ga., 1911	1915	1920
Hayes, A. H., Fairmont; Atlanta Med. Coll., 1917	1917	1919
Hodgin, H. H., Red Springs; Univ. of Md., 1905; N. C. Med. Coll., 1906	1906	1907
Johnson, C. T., Red Springs; Jeff. Med. Coll., 1920	1920	1922
Johnson, Thomas C., Lumberton; Med. Coll. of Va., 1903	1903	1903
McClelland, Joseph O., Maxton; Med. Coll. of Va., 1908	1912	1913
McIntyre, Stephen, Lumberton; Jeff. Med. Coll., 1928	1928	1930
McMillan, Benj. F., Red Springs, (Hon.); Univ. of Md., 1882	1884	1884
McMillan, R. D., Red Springs; Univ. of Md., 1910	1911	1912
Martin, J. A., Lumberton; Med. Coll. of Va., 1915	1915	1917
Nash, J. Fred, St. Pauls; N. C. Med. Coll., 1914	1914	1916
Poole, Claud T., St. Pauls; N. C. Med. Coll., 1909	1909	1913
Pope, Henry T., Lumberton, (Hon.); N. C. Med. Coll., 1894	1893	1902
Reed, D. H., Maxton; Geo. Wash. Univ., 1901	1904	1917
Smith, John McNeill, Rowland; Jeff. Med. Coll., 1908	1908	1909
Stamps, Thos., Lumber Bridge, (Hon.); Univ. of Louisville, 1888	1888	1890

ROCKINGHAM COUNTY SOCIETY

President:	.....	.....
Secretary: B. F. Cozart, Reidsville; Med. Coll. of Va., 1931	1931	1931
Abernathy, Miles B., Reidsville; N. C. Med. Coll., 1906	1906	1910
Carter, P. C., Madison; Univ. of Md., 1916	1916	1920
Casteen, Kenan, Leaksville; Univ. of Bellevue Hosp., Med. Coll., 1918	1919	1921

Name and Address	Licensed	Joined State Society
Cummings, M. P., Reidsville; Jeff. Med. Coll., 1911	1911	1914
Dillard, G .P., Draper; Bennett Med. Coll., 1916	1916	1919
Dixon, Hubert C., Leaksville; Univ. and Bellevue Hosp. Med. Coll., 1916	1916	1921
Ferneyhough, W. T., Reidsville; W. of M., 1916	1926	1927
Jett, Samuel G., Reidsville; Univ. of the South, 1903	1908	1911
Johnson, W. A., Reidsville; N. C. Med. Coll., 1907	1909	1910
McBryde, M. H., Reidsville; Univ. Coll. of Med., Richmond, 1901	1901	1904
McGehee, John Wm., Reidsville; Univ. of Md., 1904	1904	1905
Matthews, Wm. W., Spray; Chicago Coll. of Med. and Surg., 1913	1915	1918
Ray, John B., Leaksville; Balt. Med. Coll., 1898	1898	1898
Ray, S. P., Leaksville; Univ. of Pa	1929	1931
Stewart, J. T., Summerfield	1898	1898
Taylor, T. G., Leaksville; Ky. School of Med., 1877	1909	1910
Tuttle, A. F., Spray; N. C. Med. Coll., 1901	1901	1907
Tyner, Carl V., Leaksville; Univ. and Bellevue Hosp. Med. Coll., N. Y., 1916	1916	1919
Watson, Paul S., Madison; Med. Coll. of S. C., 1928	1928	1928
Wharton, Chas. R., Ruffin; Med. Coll. of Va., 1897	1897	1904
Wilson, N. G., Madison; N. C. Med. Coll., 1914	1914	1914

ROWAN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Armstrong, C. W., Salisbury; Univ. of Md., 1914	1914	1915
Black, O. R., Landis; N. C. Med. Coll., 1914	1914	1918
Brawley, M. H., Salisbury; N. C. Med. Coll., 1910	1912	1914
Brown, Clarence E., Salisbury; N. C. Med. Coll., 1918	1920	1921
Brown, G. A., Mt. Ulla, (Hon.); Univ. Coll. of Med., 1897	1897	1898
Clement, Edward B., Salisbury; Jeff. Med. Coll., 1906	1906	1913
Eagle, J. C., Spencer; Jeff. Med. Coll., 1923	1923	1925
Lowery, J. R., Salisbury; Univ. of Md., 1904	1904	1913
Marsh, Frank B., Salisbury; Jeff. Med. Coll., 1919	1919	1922
Monk, Henry L., Salisbury; Med. Coll. of Va., 1899	1899	1903
Newman, Harold H., Salisbury; Johns Hopkins, 1913	1914	1916
Peeler, John H., Salisbury; Univ. Coll. of Med., Va., 1899	1899	1904
Ramsey, Jas. G., Cleveland, Ohio; Univ. of Pa., 1922	1924	1924
Robertson, L. H., Salisbury; Univ. of Pa., 1929	1929	1931
Seay, T. W., East Spencer; Univ. of Md., 1921	1922	1924
Shafer, Irving E., Salisbury; N. C. Med. Coll., 1914	1914	1914
Sigman, Frederick G., Spencer; Univ. Med. Coll. of Va., 1909	1909	1910
Slate, Wesley C., Spencer; Univ. of Tenn., 1903	1903	1913
Spencer, Frederick B., Salisbury; Univ. of N. C., 1909	1909	1911
Stokes, Jas. Ernest, Salisbury, (Hon.); Univ. of Md., 1892	1900	1901
Summerell, E. M., China Grove, (Hon.); Univ. of Pa., 1883	1883	1883
Van Poole, C. M., Salisbury, (Hon.); P. and S., Balt., 1880	1880	1880
West, Robert M., Salisbury; Med. Coll. of Va., 1900	1900	1904
Whitfield, Wm. Cobb, Salisbury, (Hon.); Univ. of Md., 1884	1884	1884
Woodson, Charles W., Salisbury; Columbia Univ., P. and S., 1904	1905	1907

RUTHERFORD COUNTY SOCIETY

President:	.....	.....
Secretary: C. F. Glenn, Rutherfordton; Univ. of Louisville	1927	1928
Biggs, Montgomery H., Rutherfordton; Univ. of Pa., 1897	1907	1908

Name and Address	Licensed	Joined State Society
Bostic, Wm. C., Forest City; Chattanooga Med. Coll., 1899; N. C. Med. Coll., 1905	1905	1905
Bostic, W. C., Jr., Forest City; Univ. of Pa., 1926	1926	1927
Crawford, Robt. H., Rutherfordton; Johns Hopkins, 1914	1920	1921
Duncan, A. C., Forest City; N. C. Med. Coll., 1919	1919	1920
Eaves, Rupert S., Rutherfordton; Med. Coll. Va., 1932	1932	1933
Gold, Charles F., Rutherfordton; Univ. of N. C., 1910	1910	1911
Harrill, L. B., Caroleen; Chattanooga Med. Coll., 1897	1902	1904
Head, W. T., Campobello, R. 4, S. C.; Atlanta Coll. P. and S., 1911	1911	1923
Hill, A. L., Rutherfordton; Univ. of Pa	1930	1932
Hunt, J. F., Spindale; Univ. of Tenn., 1900	1900	1912
King, Robt. Rogers, Ellenboro; Med. Dept. Univ. of Ark	1931	1932
Logan, F. W. H., Rutherfordton; N. C. Med. Coll., 1916	1916	1919
Lovelace, Thos. C., Henrietta; N. C. Med. Coll., 1917	1920	1920
Moss, G. O., Cliffside, Emory Univ., 1927	1927	1929
Reid, George P., Forest City, (Hon.); Univ. Coll. of Med., Va., 1895	1894	1899
Rucker, Adin Adam, Rutherfordton; Univ. of Md., 1908	1908	1909
Twitty, John C., Rutherfordton; Balt. Med. Coll., 1892	1892	1904
Verner, Carl Hugh, Forest City; P. and S., Atlanta, 1912	1923	1927
Wiseman, P. H., Avondale; Med. Coll. of Va., 1925	1925	1926

SAMPSON COUNTY SOCIETY

President: Wm. H. Sloan,, Garland; Univ. of Md., 1916	1916	1920
Secretary: J. Street Brewer, Roseboro; Jeff. Med. Coll., 1919	1919	1921
Crumpler, Paul, Clinton; Univ. of Tenn., 1907	1907	1908
Kerr, John D., Clinton; Univ. of Md., 1908	1908	1910
Lee, J. Marshall, Newton Grove; Med. Coll. of Va., 1916	1920	1923
Matthews, James O., Clinton, R.F.D., (Hon); Univ. Coll. of Med., Va., 1897	1897	1902
Parker, O. L., Clinton; Med. Coll. of Va., 1918	1918	1919
Royal, D. M., Salemburg; Med. Coll. of Va	1926	1928
Sessoms, E. T., Roseboro; N. C. Med. Coll., 1915	1915	1917
Sikes, Gibson L., Salemburg, (Hon.); Univ. Coll. of Med., Va., 1900	1900	1902
Small, Victor R., Clinton; Ohio State Univ. Med. Coll., 1916	1920	1921
Underwood, O. E., Roseboro; Univ. of Va., 1909	1909	1910
Wilson, Robert B., Clinton; Ky. School of Med., 1889	1889	1904
Wilson, S. Glenn, Clinton; Med. Coll. of Va., 1930	1930	1932

SCOTLAND COUNTY SOCIETY

President: Everett Alex Livingston, Gibson; Univ. of Md., 1912	1912	1913
Secretary: Albert W. James, Laurinburg; Jeff. Med. Coll., 1918	1918	1921
Buchanan, L. T., Laurinburg; Jeff. Med. Coll., 1913	1913	1917
Erwin, Evan A., Laurinburg; Med. Coll. of S. C., 1912	1912	1913
Gibson, John S., Gibson; Univ. of Md., 1905	1905	1907
James, F. P., Laurinburg; Univ. of Pa., 1916	1916	1917
John, Peter, Laurinburg, (Hon.); Univ. of Md., 1897	1897	1904
Pate, James G., Gibson; Univ. of Pa., 1916	1916	1917
Shaw, W. G., Wagram, (Hon.); P. and S., Balt., 1892	1895	1904
Wilcox, J. W., Schenectady, N. Y.; Univ. of N. C., 1906	1906	1906
Wilkes, Marcus B., Laurel Hill; N. C. Med Coll., 1912	1923	1923

STANLY COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: Jos. A. Allen, New London; Univ. Coll. of Med., Va., 1901	1901	1904
Secretary: J. S. Gaskin, Albemarle; Med. Coll. of S. C., 1925	1929	1931
Bigler, V. L., Albemarle; Univ. Pittsburg, 1925	1926	1927
Dickson, M. S., Oakboro; Med. Coll. of S. C., 1927	1927	1929
Dunlap, Lucius Victor, Albemarle; Univ. of N. C., 1909	1909	1910
Frazier, J. W., Badin; Jeff. Med. Coll., 1924	1924	1927
Gaskin, Lewis R., Albemarle; Med. Coll. of S. C., 1921	1924	1926
Hathcock, Thomas A., Norwood, (Hon.); Univ. of Md., 1893	1893	1904
Hill, Wm. Isaac, Albemarle; Univ. of Md., and P. and S., Balt., 1897	1897	1904
Laton, James F., Albemarle; N. C. Med. Coll., 1904	1904	1910
Moore, D. Bain, Badin; Univ. of Va., 1913	1913	1915
Shaver, W. T., Albemarle; Univ. of Md., 1918	1920	1921

STOKES COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Helsabeck, C. J., Walnut Cove; Univ. of Md., 1919	1919	1922
Jones, A. G., Walnut Cove, (Hon.); Univ. of N. Y., 1868	1894*	1892

SURRY COUNTY SOCIETY

President: Hugh Parks, Elkin; Jeff. Med. Coll., 1921	1921	1928
Secretary: R. E. Smith, Mt. Airy; Univ. of Pa., 1923	1923	1926
Ashby, E. C., Mt. Airy; Univ. of Pa., 1914	1914	1916
Britt, T. C., Washington; Jeff. Med. Coll., 1921	1921	1925
Flippin, J. M., Pilot Mountain; Coll. P. and S., Md., 1884	1893*	1926
Flippin, Samuel T., Siloam, (Hon.); N. C. Med. Coll., 1898	1898	1898
Johnson, Harry L., Elkin; Univ. of Cinn., 1924	1924	1927
Martin, Moir S., Mt. Airy; Univ. Coll. of Med., Va., 1905	1909	1916
Mitchell, R. C., Mt .Airy; Univ. of Pa., 1919	1921	1923
Royal, M. A., Elkin; P. and S., Balt., 1885	1889*	1913
Salmons, H. C., Elkin; N. C. Med. Coll., 1904	1904	1908
Smith, Jas. T., Westfield; N. C. Med. Coll., 1898	1899	1918

SWAIN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Riter, J. F., Fontana	.....	1933

TRANSYLVANIA COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Cunningham, C. E., Brevard; Johns Hopkins Med. School	1928	1932
Newland, Chas. L., Brevard; Med. Coll. of Va., 1927	1928	1932
Osborne, Jos. E., Rosman; Med. Coll. of Va., 1930	1930	1930

UNION COUNTY SOCIETY

President: William M. Love, Monroe; N. C. Med. Coll., 1915	1915	1919
Secretary: C. A. Bolt, Marshville; Med. Coll. of S. C., 1926	1929	1929
Blair, M. P., Marshville; Med. Coll. of Va., 1895	1895	1895
Goudelock, Jno. J., Monroe; Med. Coll. S. C., 1923	1924	1924

*Registered.

Name and Address	Licensed	Joined State Society
Guyton, C. L., Monroe; Med. Coll., of S. C., 1926	.....	1933
Mahoney, A. F., Monroe; Univ. Louisville, 1911	1923	1924
Ormand, J. W., Monroe; Univ. of Cincinnati Coll. of Med., 1926	1926	1927
Smith, G. M., Monroe; N. C. Med. Coll., 1914	1914	1919
Stewart, H. D., Monroe, (Hon.); Univ. of Md., 1898	1898	1901
Whims, H. C., Waxhaw; Univ. of Md., 1931	1931	1933

VANCE COUNTY SOCIETY

President: A. P. Newcombe, Henderson; Jeff. Med. Coll., 1922	1922	1924
Secretary: J. H. Wheeler, Henderson; Jeff. Med. Coll., 1918	1918	1920
Bass, H. H., Henderson, (Hon.); Univ. Coll. of Med., 1899	1899	1900
Bass, H. H., Jr., Henderson, Univ. of Pa	1929	1930
Fenner, Edwin F., Henderson; Univ. of Md., 1905	1906	1908
Harris, Fletcher R., Henderson, (Hon.); Univ. of Va., 1881	1883	1883
Newell, H. A., Henderson; P. and S., Balt., 1906	1906	1906
Royster, Thomas S., Henderson; Univ. of Pa., 1916	1916	1924

WAKE COUNTY SOCIETY

President: Coy C. Carpenter, Wake Forest; Syracuse Univ., 1924	1924	1927
Secretary: V. S. Caviness, Raleigh; Jeff. Med. Coll., 1921	1921	1925
Abernethy, Claude O., Raleigh; Univ. of N. C., 1906	1906	1907
Ashby, J. W., Raleigh; Univ. of Md., 1905	1921	1922
Barbee, G. S., Zebulon; Univ. of N. C., 1910	1910	1912
Bell, Carl W., Raleigh; Coll. of P. and S., Balt., 1914	1915	1916
Buffaloe, J. S., Garner; Balt. Med. Coll., 1900	1900	1904
Bugg, C. R., Raleigh; Johns Hopkins Med. Sch., 1922	1924	1925
Bulla, A. C., Raleigh; N. C. Med. Coll., 1915	1915	1918
Burt, B. W., Holly Springs; P. and S., Balt., 1886	1886	1904
Byrd, W. C., Morrisville; Jeff. Med .Coll., 1923	1923	1924
Campbell, Alton C., Raleigh; Univ. of N. C., 1910	1910	1912
Carroll, E. D. Dixon, Raleigh, (Hon.); Women's Med. Coll., N. Y., 1895	1900	1900
Caviness, Zebulon M., Raleigh, (Hon.); Univ. of N. C., 1903	1903	1903
Cheek, C. E., Fuquay Springs; Univ. Coll. of Med., Va., 1912	1912	1914
Combs, Jos. J., Raleigh; Columbia Univ. of C. and P., 1926	1926	1929
Cooper, G. M., Raleigh; Univ. Coll. of Med., Richmond, 1905	1905	1906
Cozart, W. S., Fuquay Springs; Med. Coll. of Va., Rich., 1914	1914	1917
Dewar, Wm. B., Raleigh, Univ. of Pa., 1920	1920	1923
Edwards, C. J., Raleigh; Med. Coll. of Va., 1917	1921	1923
Eldridge, Chas. P., Raleigh; Univ. of Pa., 1926	1926	1927
Finch, O. E., Raleigh; Jeff. Med. Coll., 1915	1915	1917
Flowers, C. E., Zebulon; Med. Coll. of Va., 1913	1915	1916
Flowers, Clarence A., Wendell; P. and S., Balt., 1905	1907	1910
Fox, P. G., Raleigh; Med. Coll. of Va., 1922	1923	1929
Freeman, R. H., Raleigh; Jeff. Med. Coll., 1908	1908	1919
Gibson, M. R., Raleigh; Univ. of Md., 1905	1905	1914
Goodwin, A. W., Raleigh, (Hon.); Bellevue Hosp. Med. Coll., 1887	1887	1887
Goodwin, O. S., Apex; Jeff. Med. Coll., 1923	1923	1926
Hamilton, John H., Wilmington; Med. Sch. of Harvard, 1916	1926	1926
Haywood, Hubert B., Jr., Raleigh; Univ. of Pa., 1909	1909	1910
Hester, Jos. R., Wendell; Univ. of N. C., 1910	1910	1912
Hicks, V. M., Raleigh; Jeff. Med. Coll., 1918	1918	1921
Hill, M. D., Raleigh; Med. Coll. of Va., 1928	1928	1931

Name and Address	Licensed	Joined State Society
Horton, M. C., Raleigh; Univ. Coll. of Med., Va., 1903	1911	1911
Horton, W. C., Raleigh; P. and S., Balt., 1897	1896	1904
Hunter, J. P., Cary; Jeff. Med. Coll., 1919	1919	1921
Jones, Carey C., Apex; Jeff. Med. Coll., 1920	1920	1923
Jordan, Thos. M., Gainesville, Fla., (Hon.); P. and S., Balt., 1881	1881	1882
Judd, Eugene C., Raleigh; Univ. of Pa., 1911	1911	1912
Judd, James M., Varina, (Hon.); Balt. Med. Coll., 1897	1897	1901
King, E. S., Wake Forest; Jeff. Med. Coll., 1927	1927	1930
Kitchin, Thurman D., Wake Forest; Jeff. Med. Coll., 1908	1908	1908
Knox, Augustus W., Raleigh, (Hon.); Bellevue Hosp. Med. Coll., 1874	1878	1880
Lamm, Isaac W., Raleigh, (Hon.); Univ. Coll. of Med., Va., 1899	1899	1900
Lawrence, B. J., Raleigh; Jeff. Med. Coll., 1918	1918	1920
Liles, L. C., Raleigh; Med. Coll. of Va., 1930	1930	1933
McDowell, F. C., Zebulon; Univ. of Pa., 1902	1913	1916
McGee, James Wm., Raleigh, (Hon.); Bellevue Hosp. Med. Coll., 1888	1888	1888
McKee, John S., Raleigh; Univ. of Md., 1907	1908	1909
McLeod, N. H., Raleigh; Univ. of Pa., 1930	1930	1932
Mackie, Geo. C., Wake Forest; Univ. of Pa., 1928	1928	1932
Milan, D. F., Raleigh; Rush Med. Coll., 1923	1923	1933
Mitchener, J. S., Raleigh; Johns Hopkins Univ., 1915	1915	1918
Neal, Kemp P., Raleigh; Harvard, 1917	1920	1921
Neal, Paul N., Raleigh; Harvard, 1919	1920	1921
Noble, R. P., Raleigh; Univ. of N. C., 1907	1907	1916
Norman, J. H., Raleigh; Tulane Univ., 1905	1905	1923
Oliver, A. S., Raleigh; Jeff. Med. Coll., 1914	1914	1919
Owen, J. F., Dix Hill, Raleigh; Jeff. Med. Coll	1920	1927
Parrott, Jas. M., Raleigh, (Hon.); Tulane Univ., 1895	1895	1896
Powell, Herman S., Morrisville; Med. Coll. of Va., 1932	1932	1933
Powers, J. B., Wake Forest; Columbia, 1907	1907	1911
Proctor, I. M., Raleigh; Univ. of N. C., 1913; Univ. of Pa., 1915	1915	1917
Rand, E. G., Raleigh; Univ. of Pa., 1926	1926	1929
Ray, O. L., Raleigh, Rt. 1; Univ. Coll. of Med., Richmond, 1899	1899	1904
Rogers, Jas. Rufus, Raleigh; P. and S., Balt., 1886	1886	1904
Root, Aldert S., Raleigh; Univ. of Pa., 1911	1911	1913
Royster, Hubert A., Raleigh, (Hon.); Univ. of Pa., 1894	1894	1895
Smith, Sidney, Prof. Bldg., Raleigh; Tulane Univ., 1925	1925	1930
Smith, W. G., Wendell; Med. Coll. of Va	1926	1928
Stimpson, R. T., Raleigh; Univ. of Pa., 1927	1927	1929
Thompson, Hugh A., Raleigh; Univ. of Pa., 1914	1914	1917
Turner, H. G., Raleigh; Univ. of Pa., 1906	1907	1925
Vann, H. M., Wake Forest; Jeff. Med. Coll., 1917	1920	1923
Ward, W. T., Raleigh; Univ. of Md., 1925	1925	1927
Watson, John B., Raleigh; Univ. of N. C., 1908	1908	1909
Weathers, R. R., Knightdale; Richmond Med. Coll	1926	1928
West, Louis N., Raleigh; Jeff. Med. Coll., 1912	1912	1915
Wilkerson, Charles B., Raleigh; Univ. of N. C., 1906	1906	1908
Wilkins, R. B., Raleigh; N. C. Med. Coll., 1913	1913	1915
Wilkinson, C. T., Wake Forest; Tulane Univ., 1922	1922	1923
Wilkinson, R. W., Jr., Wake Forest; Tulane Univ., 1922	1923	1924
Winston, P. H., State Hospital, Raleigh; Med. School of Va., 1929	1929	1930
Wright, J. B., Raleigh, (Hon.); Univ. Coll. of Med., Va., 1899	1899	1900
Yarborough, Frank R., Cary; University of Penn., 1923	1925	1926
Ziegler, M. V., Raleigh; Univ. of Md., 1915	.....	1932

WARREN COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President:	.....	.....
Secretary: G. H. Macon, Warrenton; Univ. Coll. of Med., Va., 1910	1910	1911
Foster, H. H., Norlina; Jeff. Med. Coll., 1919	1919	1923
Hunter, Frank P., Warrenton; Univ. of Va., 1925	1925	1927
Peete, C. H., Warrenton; Univ. of Pa., 1903	1906	1911
Rodgers, W. D., Jr., Warrenton; Jeff. Med. Coll., 1913	1913	1915

WATAUGA-ASHE COUNTIES SOCIETY

President:	.....	.....
Secretary:	.....	.....
Hagaman, J. B., Boone, 1915	1915	1915
Jones, T. Lester, Lansing; Va. Med. Coll., 1909	1909	1917
Perry, H. B., Boone; N. C. Med. Coll., 1905	1905	1922

WAYNE COUNTY SOCIETY

President: Wm. C. Steel, Mt. Olive; Univ. of Md., 1891	1891	1894
Secretary: C. E. Howard, Goldsboro; Univ. of Pa., 1925	1925	1927
Best, D. E., Goldsboro; Univ. of Md., 1924	1924	1926
Bizzell, M. E., Goldsboro; Tulane Univ., 1923	1923	1925
Cobb, Donnell B., Goldsboro; Univ. of Pa., 1921	1921	1926
Cobb, W. H., Jr., Goldsboro, (Hon.); Jeff. Med. Coll., 1889	1889	1890
Dale, G. C., Goldsboro; Univ. of Pa., 1925	1925	1927
Hollingsworth, E. T., Goldsboro; N. C. Med. Coll., 1912	1912	1915
Ivey, H. B., Goldsboro; Univ. Coll. of Med., Richmond, 1911	1911	1917
Jones, Clara E., Goldsboro, (Hon.); Women's Med. Coll. of Pa., 1894	1894	1897
Knox, J. C., Goldsboro; Univ. of Md., 1924	1924	1932
Linville, W. C., Goldsboro; Univ. of Md., 1903	1903	1923
Lister, J. L., Mt. Olive; Med. Coll. of Va., 1896	1896	1909
Miller, Robert B., Goldsboro, (Hon.); Med. Coll. of Va., 1898	1900	1902
Person, Edgar Cooper, Pikeville; Med. Coll. of Va., 1905	1905	1908
Register, F. M., Goldsboro, (Hon.); Ky. School of Med., 1893	1891	1904
Smith, Wm. H., Goldsboro; Univ. of Pa., 1906	1907	1912
Strosnider, Charles F., Goldsboro; Univ. of Md., 1909	1910	1913
Sutton, William G., Seven Springs; Jeff. Med. Coll., 1889	1889	1896
Tucker, E. V., Goldsboro; Med. Coll. of Va., 1930	1930	1932
Whelpley, Frank L., Goldsboro; Missouri Univ., 1902	1918	1918
Wilkins, J. W., Mount Olive; Med. Coll. of Va., 1913	1913	1917
Woodard, A. G., Goldsboro; Univ. of N. C., 1907	1907	1909

WILKES-ALLEGHANY COUNTY SOCIETY

President: Harold Benj. Smith, North Wilkesboro; Med. Coll. of S. C.	1929	1930
Secretary: W. O. Brandon, North Wilkesboro; Med. Coll. of Va., 1928	1928	1932
Eller, Albert J., Readybranch; P. and S., Balt., 1893	1895	1898
Gilreath, Frank H., N. Wilkesboro, (Hon.); Univ. of Nashville, 1898	1898	1898
Hubbard, Fred C., North Wilkesboro; Jeff. Med. Coll., 1918	1919	1921
Hutchens, E. M., North Wilkesboro; N. C. Med. Coll., 1896	1896	1904

Name and Address	Licensed	Joined State Society
McNeill, James H., North Wilkesboro; Geo. Wash. Univ. Med. School, 1926	1926	1927
Sink, C. S., North Wilkesboro; N. C. Med. Coll., 1912	1912	1913
Triplett, W. R., Purlear; N. C. Med. Coll., 1914	1915	1920

WILSON COUNTY SOCIETY

President:	.....	.....
Secretary: W. C. Hunter, Wilson; Univ. of Pa., 1928	1928	1931
Anderson, Wade H., Wilson; Univ. of Va., 1902	1904	1904
Bell, G. E., Wilson; Jeff. Med. Coll., 1921	1921	1922
Best, Henry B., Wilson; Univ. of N. C., 1907	1907	1908
Blackshear, T. J., Wilson; Emory Univ., 1914	1923	1924
Dickinson, Elijah T., Wilson, (Hon.); Med. Coll. of Va., 1895	1895	1900
Grady, Leland V., Wilson, Rt. 2; N. C. Med. Coll., 1913	1913	1914
Hackney, Ben. H., Lucama; Tulane Univ., 1911	1911	1913
Lane, P. P., Wilson; Univ. of Md., 1908	1908	1920
Lewis, Geo. W., Wilson, (Hon.); Univ. of Md., 1886	1885	1894
McClees, E. C., Elm City; Med. Coll. of Va., 1917	1920	1920
Mitchell, G. W., Wilson; Univ. Coll. of Med., Va., 1913	1913	1920
Moore, Chas. E., Wilson, (Hon.); Bellevue Hosp. Med. Coll., 1875	1875	1875
Mullen, Malcolm P., Wilson; Emory Univ. Med. School, 1927	1927	1928
Pittman, M. A., Wilson; Jeff. Med. Coll., 1921	1924	1923
Putney, R. H., Elm City; Med. Coll. of Va., 1914	1914	1920
Saliba, Michael M., Wilson; Balt. Med. Coll., 1897	1910	1910
Smith, A. Jones, Black Creek; Univ. of Pa., 1921	1921	1923
Strickland, Ernest L., Wilson; Med. Coll. of Va., 1916	1916	1917
Willis, H. C., Wilson; P. & S., Memphis, 1911	1916	1924
Woodard, C. A., Wilson; Univ. of Va., 1904	1904	1920
Woodard, G. B., Wilson; Med. Coll. of Va., 1915	1915	1916

YADKIN COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....
Weaver, H. J., Hamptonville; Jeff. Med. Coll., 1925	1925	1930

YANCEY COUNTY SOCIETY

President:	.....	.....
Secretary:	.....	.....

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